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ORIGINAL ARTICLES

THE INTRAVENOUS INFUSION OF FLUIDS, CONSIDERED WITH PARTICULAR REFERENCE TO THE ADMINISTRATION OF SALVARSAN AND NEOSALVARSAN

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The infusion of fluids into the blood is an old and well established surgical procedure. Up to very recently, however, this operation was almost entirely limited in its use as an emergency measure, in cases of hemorrhage, shock and similar conditions, in which it was necessary to replenish the blood supply by the addition of saline solution, etc. As a matter of consequence, this operation has usually been performed in hospitals by experienced surgeons or by internes under their supervision. and it may truthfully be said that it has usually been performed satisfactorily.

Recently, however, with the introduction of salvarsan into the therapeusis of syphilis and allied diseases, the intravenous administration of this drug has been practiced very extensively, owing to the painfulness of the intramuscular injection. As a result, these intravenous injections have been given under conditions that do not often fulfil all the requirements of a surgical procedure. Careful preparation of the solution, asepsis of the skin of the patient and of the apparatus employed, exact and painstaking technic in the introduction of the needle into the vein and in maintaining it in its proper place, these are all details which should receive our most earnest attention. Nevertheless, it must have been the experience of all who have been interested in salvarsan and its administration that the operation is not so seriously regarded by many who are using the remedy; apparently they do not consider it in the light of a serious surgical procedure, capable of doing much harm if improperly performed and even causing death occasionally. Armed with an apparatus, a needle, an ampulle of salvarsan and a description of the technic accompanying every package, many a practitioner who would never dare to draw blood for a Wassermann test or such similar diagnostic measures, has taken upon himself the responsibility of administering this powerful remedy, without ever having seen it given before. Happily, the results have shown that nature is highly tolerant of abuse, and the fatalities have been surprisingly few indeed.

The intravenous administration of salvarsan or any other remedy should be considered in the light of a surgical operation of great importance and should be performed only under the strictest surgical conditions. In view, however, of the frequency with which the operation is being done in connection with the use of salvarsan, it might be well to discuss the technic in detail, as far as this remedy is concerned.

It goes without saying that the patient should not suffer from any lesion that would contraindicate the introduction of a large quantity of fluid, particularly an arsenic solution, into the blood. The solution having been prepared, the first step is the thorough sterilization of the skin, as for any other surgical operation. Soap and water, alcohol and ether, constitutes a very satisfactory method of sterilization; I have tried the iodin method, but the discoloration of the skin sometimes interferes with the identification of the vein sought for. Even when the discoloration has been neutralized by washing with alcohol and ether, there is still some difficulty at times in locating the vein, particularly when the veins are small and the patient stout.

The skin and apparatus having been sterilized and the solution made ready for administration, the next step is the selection of the vein to be employed. This, I believe, is of considerable importance, and a stumbling block in the way of many a successful operation. The upper arm is encircled by a rubber band or catheter just tight enough to obstruct the arterial flow without interfering with the flow in the veins. It will be observed that the veins of the forearm near the elbow become distended. This distension is increased when the patient closes the fist tightly. Some veins are naturally very large, and distension makes them almost as thick as a finger. In stout persons, any amount of tightening of the upper arm fails to bring a vein into prominence sufficiently for injection purposes. Though such veins can often not be seen, they can be readily felt by the trained finger, however, as a cord or wire of varying thickness.

The vein having been selected—usually the median basilic—the question presents itself, whether the needle shall be simply plunged into it, or whether the vein shall be cut down upon and the needle inserted, as is usually done in surgical infusion. There is a diversity of opinion on this question, and it is surely one upon which honest men may differ. When salvarsan was first given intravenously, it was the preponderance of opinion that the cutting operation was the safer from the patient's standpoint, and the more certain from the surgeon's point of view. Greater experience, however, has demonstrated that the noncutting method may be employed with absolute safety and surgical propriety, provided that the technic employed is flawless.

It has been my personal observation that many men lack the tactile sense that is required to plunge the needle into a vein properly, whether it be large or small. Such operators either puncture the posterior wall of the vein by driving the needle through its lumen and clear through the posterior wall, or they tear the anterior wall in such a way as to cause considerable leakage into the surrounding tissues. In the case of large veins, a hematoma forms immediately, making it impossible for the injection to be made at that point. If, as is sometimes the case, a hematoma does not result, a swelling forms under the skin, when the first drops of fluid are permitted to flow, giving positive evidence that leakage is taking place and that the fluid is being injected partly into the adjacent tissues instead of entirely into the vein.

For operators with this faulty tactile sense, it cannot be doubted for a moment but that the cutting operation is imperatively indicated, if the best interests of the patient and their own reputation are considered. On the other hand, there are many men with a highly developed tactile sense, to whom the introduction of a needle into a vein is a fairly simple matter. For such men there can be no reason for cutting down upon the vein, unless it be that the veins of the arm are so small and ill-defined that they can neither be seen nor felt.

At first sight, it would appear to be good routine practice to cut down upon the vein in all cases, in order to avoid the slightest possibility of escape of the arsenic solution into the adjacent tissues. With this method, the needle and the vein can be seen under the operator's eye, and one can tell at a glance whether the solution is being injected properly into the vein, or improperly into the tissues surrounding it. But there is this decided disadvantage to the method.

However small the incision may have been made, a visible scar is surely left behind, and everybody now knows what a scar on the inner surface of the elbow means. It is an announcement to all the world that the bearer of such a scar has been treated for syphilis by an intravenous injection of salvarsan. The lay public is not slow to know these things and the victim is often made to feel the sting of shame and disgrace.

Again; the wound is apt to become infected, and the scar may assume ugly proportions. I have seen one case, a seventeen-year-old girl, innocently infected on the lower lip, who presents a scar on the inner surface of one of her arms that is fully two inches long and of the thickness of a lead pencil. This girl had been outrageously mutilated as a result of the faulty technic employed in her case, rendering it impossible for her to wear a short sleeve or an evening gown. This may be purely sentimental and out of place in a scientific discussion of a surgical measure, but we can surely be scientific without bringing shame to our patients. It is a crime to mutilate a young woman's arms in this way, and to brand her for the rest of her life.

Objection to the scar on the arm is also found by men who work in their shirt sleeves and who are constantly being observed by their neighbors. A young man informed me that he had lost a good position because his employer noticed the scar on his arm, and refused to have a man with syphilis in his office. Life insurance examiners ask the applicant for insurance to bare the arms, so they can look for intravenous scars as an evidence of his having been treated for syphilis.

All of this annoyance to the patient can be obviated by plunging the needle directly into the vein, which leaves neither scar nor mark of any kind whatever in its wake. This then must surely be considered the method of choice in the administration of salvarsan.

Technically, there is little difficulty in inserting a needle into a distended vein, if one knows how to do it. As I have already stated, a fine tactile sense is required in many cases, but ordinarily there should be no difficulty whatever. An important matter is the selection of the proper needle. Some prefer the curved needle of Schreiber, others prefer a straight one. I always use a straight needle, one and a half inches in length, gauge 16 or 18. The point should not be too sharp, yet sharp enough to enter the tissues readily and not tear its way into the vein by lacerating the walls. The needle should be thoroughly smooth inside, otherwise coagulation of the escaping blood may take place. A needle should not be used more than three or four times at the most in order to insure a smooth lumen. The shank should be fairly large, and should hold the metal canula of the irrigating tube tightly.

The arm having been constricted and the distended vein selected, the needle is inserted under the skin a little to one side of the vein. In order to make sure that the needle has not struck the vein, it should be moved slightly from side to side several times. Now we grasp the vein with two fingers of the left hand, and steadying it in this manner, we bring the point of the needle up to the vein and carefully yet firmly plunge it through the wall in a direction almost parallel, never perpendicularly, to the direction of the vein itself. In this manner we avoid puncture of the posterior wall. If the needle has entered properly a fairly strong stream of blood makes this fact apparent. If there is but a slight oozing of blood, the needle is probably not within the vessel properly, and it should be carefully manipulated so that we are certain of its proper position. The band around the arm is now quickly withdrawn and the canula of the irrigating apparatus applied to the needle's shank, care being taken, however, to let the fluid run slowly while inserting the canula so as to drive out the air in the tubing. Whether saline solution be first used to be sure that the needle is properly placed, depends on the individual operator. I think it is good policy to use a little saline first, but I do not do so as a rule, and have rarely had any unpleasant results. As a matter of routine, however, particularly with the inexperienced, this should always be done.

While the fluid is entering the vein the needle must remain absolutely stationary; the operator should carefully watch the vein and also the fluid in its receptacle. If the slightest signs of swelling appear under the skin, we have direct evidence of leakage into the tissues. A minute amount of leakage may sometimes be permitted without interference, if the fluid is running into the vein at the usual speed, but if it is seen that the fluid is entering very slowly or not at all and the leakage is growing more evident, we must stop the flow instantly, and withdraw the canula from the needle. Either one of two things must now be done. The band may be placed on the upper arm again and the needle so manipulated as to get a stronger flow of blood from the vein, thus insuring its being properly placed, or if that is impossible, we must withdraw the needle and make a new puncture in another vein, or in the same vein, higher up, if that can be done. The band is again removed and the canula attached as before.

Some veins leak even though the needle is properly placed under the very best technic. I have seen this so often, at the hands of skilful operators, that I am convinced of this fact. This leakage is most frequently observed in very large and flabby veins; the leakage of blood begins as soon as the needle enters the lumen of the vessel, and shows itself in the form of a rapidly forming and growing hematoma. I have seen five or six hematomata on one arm, as the result of that number of punctures. I believe this is due to the fact that the large veins have not the firmness and elasticity of the smaller vessels, and do not hold the slender needle as tightly in place as do the smaller and more elastic veins. The result is an escape of blood around the needle. In these cases, it is well to choose a vein that is fairly small, even one that must be identified by the sense of touch alone; or a needle of larger caliber must be employed. Generally speaking, a heavier needle is preferable in these cases.

Cessation of the flow is a very troublesome complication and it is sometimes very difficult to determine its exact cause. The most common cause, in my opinion, is coagulation of blood in an old needle due to its rough inner surface. This can sometimes be remedied by withdrawing the canula and inserting a wire into the needle. This is usually sufficient. Very often the flow will cease owing to the fact that the needle has moved slightly within the vein, so that the eye of the needle is in direct contact with the wall of the vein, or one of its valves, and there is no opportunity for the fluid to enter. In such cases, slight rotation of the needle, or moving it backward or forward for a very slight distance will bring on a sudden return of the flow.

The character of the apparatus employed is of little moment, as long as it insures a steady flow of the fluid through the needle and into the vein. When the last drops of fluid appear, it is well to stop the flow completely and then withdraw the needle. This prevents the dripping of the injection fluid into the tissue between the needle and the skin.

The method of injection by incision should be resorted to only in the conditions that have already been mentioned, viz., cases in which on account of excess of fat or other reason, the veins cannot be seen or felt; it should also be employed when the operator lacks the tactile sense, which is an essential for the simple puncture. Apart from the scar defect and the additional expenditure of time involved in the cutting operation, this method is certainly a most desirable one, for every step of the procedure is performed under the operator's eye and there is no danger of complications of any kind.

The various steps of the operation are as follows: The field of operation having been thoroughly cleansed, the arm is constricted three or four inches above the elbow joint with a rubber band or catheter; select the most prominent vein, preferably the median basilic; make an incision down to the vein in its long axis, of sufficient length to expose it freely; a half inch incision is usually sufficient; separate the vein from the adjoining tissues with a probe, a grooved director or an aneurism needle; tie the vein at the lower opening of the wound and pass a second ligature above the preceding one without tying it; make a small incision in the vein lengthwise or transversely between the ligatures with a scissors; insert the point of the needle upward into the vein, meanwhile permitting the blood to escape from it slowly; remove the constriction on the arm and tie the needle in place by tightening the second (loose) ligature, making a bow-knot. The fluid should enter the vein slowly; the vein should be carefully watched during the entire flow of the fluid. This having been completed, the needle is withdrawn, the bow-knot is tightened completely and the vein is divided between the ligatures. The external wound is closed with one or two sutures and dressed aseptically. It goes without saying that perfect asepsis is a *sine qua non* in this as in any other surgical operation; otherwise infection may take place resulting eventually in the formation of a large, unsightly scar, resembling a keloid in some instances. I am inclined to feel, however that the average patient would prefer the ephemeral pain of the intramuscular injection, to the permanent scar left by the cutting operation. As a matter of routine practice, I refuse to do the cutting operation.

113 East 10th St.

THE RURAL ORIGIN OF MUCH OF THE TYPHOID FEVER IN LARGE CITIES, AND THE NEED OF REORGANIZING RURAL PUBLIC HEALTH ADMINISTRATION

SUGGESTED BY A STUDY OF TYPHOID FEVER IN NEW YORK CITY

By Charles Frederick Bolduan, M.D.
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The frequency of the occurrence of typhoid fever is perhaps the most reliable single index of the sanitary condition of a rural community. The older communities with better sanitary environments regularly have lower typhoid rates, and conversely, rates are usually high in newer communities, where but little attention has been paid to public health and sanitation. It is impossible, by merely comparing the typhoid fever death rates of urban and rural communities, to gain an accurate conception of the relative danger of typhoid infection in the two communities. In one way or another a very large part of the typhoid infections in a large city are chargeable to infection from without, and there is no doubt at all but that the proportion carried in the opposite direction is relatively small. The number of cases of typhoid fever occurring annually in the United States is a reproach to our public health administration, and indicates more clearly than anything else that our methods in this direction are faulty. This failure on our part is brought home to us when we study the statistics of typhoid fever for European countries.

Considerable progress has been made in this country in the last ten years toward reducing our excessive typhoid fever rates, the main efforts having been directed toward improving our water supplies and our methods of sewage disposal. In recent years, also, much has been done to improve the quality of our milk supply. The success attending these methods is well reflected in the typhoid fever returns from many of our large cities, but it seems not to be realized that a continuation of these methods will not by any means entirely eradicate typhoid fever, or even reduce it to the European standard. I am convinced that after a certain point has been reached, a further reduction in typhoid fever rates in this country can be effected only by a radical change in our methods of public health administration, particularly as it applies to rural districts.

What I have to say is the result of my study of typhoid fever in New York City; and while I realize that each city has its own peculiar sanitary problems to solve, there is no doubt in my mind that the conclusions here presented are of quite general applicability.

The accompanying table No. 1 exhibits the distribution of typhoid fever in the various boroughs composing the city of New York.

A study of this table indicates that the *main* source of typhoid infections in Manhattan, Bronx and Brooklyn must be a factor common to all of these boroughs. Since each of these boroughs has its own peculiar water supply, we may say that water probably has no great share in introducing typhoid infections into these boroughs. This is borne out by a study of the seasonal distribution of typhoid infections in New York City, which shows that with rare exceptions there has been comparatively little spring typhoid fever. It must, of course, be borne in mind that this is only relative; the actual amount of spring typhoid fever is still considerable and certainly far above that of European cities. Moreover, the Croton water which supplies the old city of New York is drawn from impounded streams draining an area of some 360 square miles, and it is practically impossible to prevent at least some pollution of the water. While typhoid bacilli have never been found in Croton water, it may be noted that colon bacilli are quite commonly present in 10 c.c., fairly often in 1 c.c., and now and then in 1/10 c.c. Judged by the accepted standards, this is not a particularly good showing, and there is no reason to disbelieve that Croton water has caused a part of the typhoid infections in the city of New York. It is not sufficient argument against this belief to say that the Borough of Brooklyn, which is supplied almost wholly with deep well water, has somewhat higher typhoid rates than the Borough of Manhattan. These higher rates could well be accounted for by the inferior sanitary conditions prevailing, at least in parts, of the Borough of Brooklyn; considerable parts of the borough still having outdoor privies and cesspools.

The more we have studied New York's typhoid infections, and the more we have perfected our methods of tracing the source of infection, the more frequently have we discovered milk to have been the vehicle of infection. Nor is this surprising when we consider the unsanitary conditions under which, despite all our work, milk is still handled on the dairy farms. Our efforts at control have resulted in a great deal of good, but the education of the dairyman is a slow process, and dairy farming is still largely in the hands of the ignorant. The outbreaks due to milk infections which we have been able to trace have occurred during all seasons of the year, but more frequently in summer than at other times. I think that I may say also that the summer outbreaks have been greater in extent. To my mind this is due to the fact that, unlike water, milk affords such an excellent medium for the growth of typhoid bacilli, and that during the summer the temperature conditions also largely favor this growth. In not every instance of milk-borne outbreaks are we able to discover the original source of infection, but our methods of tabulation and analysis has left no doubt but that even in these instances the outbreak could properly be charged to milk.

Another very common cause of typhoid infections in New York City is infection of the patient while out of town. According to our records, about one-quarter of all our typhoid infections are of this origin. So far as the exact mode of infection of these out of town cases is concerned, we have not had the opportunity or the facilities to study this more closely.

While it is impossible to give any exact figures, the writer feels that taken all together (milk, water, out of town, etc.) over half of the typhoid infections occurring in the city of New York are of *rural* origin. And excepting those communities whose drinking water is derived from an infected lake or river near the city, or whose sewage disposal is unsatisfactory, so that fly infection is prevalent, this probably applies to most other American cities. The rural origin of typhoid fever has lately been questioned in an able paper by Sedgwick, Taylor and MacNutt, but it seems to me that these authors have missed the essential point at issue. According to them "the question at issue is simply whether, in proportion to the population, typhoid fever is more prevalent over rural or over urban areas." If this really were the question, one would find no fault with their logical conclusion that typhoid fever is not really a rural disease. But this statement of the question entirely leaves out of account the enormous difference in the relative significance of typhoid fever in the city and in the country. With practically all water and food supplies (milk, green vegetables, etc.) coming from the country to the city, and with typhoid fever preëminently a water- and food-borne infection, the occurrence of one case of typhoid fever in the country far outweighs that of a case in the city. Have we not seen a single case of typhoid fever on a dairy farm give rise to over three hundred cases of the disease in this city! And how, after all, aside from carriers, can typhoid infection ordinarily be carried from the city into the country, except by persons visiting the city and becoming infected there? Typhoid fever in cities may therefore be very largely chargeable to rural infection, even though typhoid mortality rates in the rural districts are lower than in the city. So far as New York City is concerned, I am convinced that much of its antityphoid campaign must be directed against infections of rural origin.

In this connection, I wish to emphasize the important part played by the rural health officer. Our present system of rural public health administration is decidedly faulty. The science of public hygiene has developed enormously in recent years, and even more, perhaps, than the other branches of medicine, and it is illogical to expect a local practising physician, busy with all the details of a general country practice, to keep in touch with the achievements of modern public health work. In addition to this, his status as a general practising physician to the community often places him at a decided disadvantage in the enforcement of proper public health measures. The result is that rural public health administration in this country is, to a large extent, inefficient. What is needed is a reform of our present methods; we should have trained officials sufficiently paid to obviate the necessity of their practising, and each administering, rather autocratically, a given district. This method of administration has been attended with pronounced success in Germany and in England, and there is no reason why it cannot be adapted to work equally well here.

In Germany the administration of public health matters is entrusted to the "Kreis-arzt," who is a specially trained official appointed only after passing a rigorous examination, and usually devoting all his time to public health work in his district. He is responsible to the Local Authority, represented in the person of the Regierungspräsident." In England a similar mode of administration has been pursued; the Medical Officer of Health is a specially trained official who administers the public health affairs of his district, subject to the various rules and regulations made by the Local Government Board. He is responsible to the District Council, and usually devotes his entire time to public health work, the compensation being according.

What the public in this country need still to learn is that questions of public health are not matters chiefly of local concern. There is no question, for example, if a community desires to have its streets dark and ill-paved, that it is really anyone's concern but that of the inhabitants of the community. Similarly, if a village desires to enact and enforce a curfew ordinance, no one but the village inhabitants should be concerned. Quite otherwise, however, are questions of public health. These concern the people of the entire State, and have therefore always been considered as subject to the police powers of the State. Unfortunately, however, except in times of serious epidemics, the responsibility of the State in questions of public health has been forgotten and the individual communities have been left too much to shift for themselves.

The ideal method of organization would be one by which, while the local community retained some voice in its public health affairs, the State would be assured that certain minimum requirements would be properly met. To some extent conditions should be similar to those surrounding the duties of sheriff; on orders from the governor he exercises police powers *in accordance with State law*. So, too, the district health officers should enforce *State health laws* on direct orders from the State Health Commissioner. Most of our present difficulties, I believe, would be overcome, were our rural public health service to be organized on a larger scale; had our public health authorities a number instead of only one community to consider. Organization on a larger scale, i. e., based on larger units, would also make it possible to command the entire time of trained officials, instead of as now, only part time of physicians untrained in public health work who are compelled to make their living through private practice.

If trained public health officials are to be secured as district health officers, one of the first questions arising is as to compensation. At the present prevailing cost of living, one could not hope to obtain the services of competent officials for less than $3000 per annum and expenses, and this appears a large item to communities accustomed to the present method of administration. Since the benefits of improved sanitary administration would be shared by the entire State, one might adopt the English plan, and apportion the charge, half on

TABLE I

TYPHOID FEVER IN NEW YORK CITY

Cases, Deaths and Death Rate per 100,000 in Each Borough, 1900-1911

Year	Greater City			Borough of Manhattan			Borough of the Bronx			Borough of Brooklyn			Borough of Queens			Borough of Richmond		
	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate
1900	2,658	718	20.8	1,658	342	17.1	101	30	17.1	697	301	24.0	117	32	24.0	85	13	18.8
1901	2,748	727	20.6	1,860	380	20.3	85	32	14.5	644	272	22.5	81	27	16.6	78	16	23.2
1902	3,871	765	20.3	2,524	366	18.7	105	34	14.0	961	322	25.8	202	32	18.5	79	11	15.5
1903	3,671	653	17.1	2,342	317	15.7	120	33	12.3	1,003	267	20.6	119	22	12.0	87	14	19.2
1904	3,412	661	16.8	1,916	277	13.8	220	32	10.9	1,050	303	22.7	133	34	17.6	93	15	20.0
1905	4,326	649	16.0	1,867	273	12.9	327	37	12.0	1,913	297	21.6	146	31	15.1	73	11	14.4
1906	3,467	639	15.4	1,713	325	15.1	301	44	15.2	1,215	230	16.4	166	30	14.3	72	10	13.4
1907	4,426	740	17.0	2,387	372	16.9	384	48	15.0	1,341	271	18.0	171	36	16.0	143	13	19.0
1908	3,058	536	12.0	1,455	254	11.3	333	37	11.3	999	206	13.8	200	32	13.7	71	7	9.3
1909	3,499	564	12.3	1,556	262	11.4	459	63	18.0	1,131	119	12.4	234	37	15.1	119	11	14.1
1910	3,582	558	11.8	1,884	269	11.5	289	41	11.0	1,113	198	12.4	215	39	15.1	81	11	13.6
1911	3,450	545	11.1	1,733	257	11.1	402	38	9.0	1,104	211	12.3	171	28	9.0	40	11	12.3
Total	42,168	7,755		22,895	3,694		3,126	469		13,171	3,069		1,955	380		1,021	143	

TABLE II

TYPHOID FEVER IN CERTAIN LARGE CITIES OF THE WORLD

Deaths per 100,000 Population

Year	Berlin	Hamburg	Vienna	Paris	London	New York	Boston	Chicago	Washington, D. C.	Philadelphia
1890	9.1	26.2	9.4	28.2	14.8	21.8	34.6	91.6		63.6
1891	10.4	26.2	6.2	22.7	13.0	22.8	33.6	173.8		63.9
1892	8.3	34.5	8.3	28.0	11.4	21.9	29.3	124.1		40.3
1893	9.4	17.6	8.0	22.8	16.7	21.7	21.0	53.5		40.9
1894	4.2	6.0	5.1	27.4	14.6	18.0	29.0	37.5		32.5
1895	5.7	9.2	5.8	10.6	14.0	17.1	32.5	37.9		40.3
1896	4.7	5.4	5.2	10.1	13.4	14.1*	31.4	52.6		33.8
1897	4.0	7.1	5.4	9.7	13.3	15.4	32.7	29.3		33.2
1898	4.3	4.6	6.8	9.9	13.0	20.7	34.0	40.8	60.6	51.5
1899	4.1	3.7	4.1	29.0	17.8	16.3	29.7	27.2	60.7	74.9
1900	5.8	3.4	8.3	34.6	16.5	20.8	25.5	19.8	77.8	34.7
1901	4.7	4.	4.5	15.8	12.1	20.6	25.0	29.0	61.4	33.6
1902	2.7		3.0	15.7	12.0	20.3	24.2	44.1	79.1	43.6
1903	3.2		3.9	13.7	8.6	17.1	20.5	31.4	48.8	69.4
1904	3.7		3.4	15.4	2.6	16.8	22.9	19.6	47.0	52.8
1905	5.3		4.4	11.2	5.2	16.0	19.6	16.9	48.2	47.6
1906	4.6	4.	4.9	13.5	5.8	15.4	19.9	18.5	52.3	72.4
1907	3.8	3.	2.6	10.0	4.3	17.2	10.2	18.4	34.6	59.3
1908	3.6	4	4.3	8.3	5.1	12.0	24.7	16.1	36.5	34.8
1909	4.4	3.	3.0	9.4	3.	12.2	13.9	12.6	33.2	21.1
1910	3.6	2.5	4.1	6.7	4.	11.6	11.6	13.7	23.2	17.4
1911						10.9	9.1			14.1

*Greater New York, 1896 to date.

the district and half on the State at large. It may be objected that the scheme here proposed involves added expense. While this is true, there is no doubt but that the expenditure would represent a well-paying investment. It must not be expected that rural public health administration can be conducted as economically as municipal public health administration. The city of New York conducts a highly organized and admittedly efficient health department for about 75 cents per capita annually. Rural communities should be prepared to pay from $1.25 to $1.35 for their service, although, as I have already said, a redistribution of this charge might be made.

There is little doubt that with adequate salaries well trained men could readily be found to take these positions. Men trained in public health work in the health departments of our large cities would welcome such openings; in addition to which there are a number of medical and technical schools now graduating men well fitted to take up this work. Once started the service would quickly find a large body of understudies, ready to learn public health administration. And, just as now, teachers pass from one community to another to fill a better position, so would health officers seek promotion and better paying positions on the bases of their record in the old districts.

GLYCOSURIA IN PREGNANCY

By Archibald L. McDonald, A.B., M.D.
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The significance of sugar in the urine of pregnant women is a question to which one may find a variety of answers. A case recently under observation aroused interest in the matter, and I present herewith some conclusions.

First, as to diagnosis, most men use as a routine sugar test, Fehling's or Haines' copper hydrate reduction. Either is sufficiently accurate to show the presence of glucose in any significant, pathological amount, and a negative finding should exclude glycosuria. On the other hand, certain substances other than glucose will cause a fairly typical reduction, so a positive finding alone is not sufficient for a diagnosis. Urine of high specific gravity or containing much mucus, uric acid, etc., may confuse. Lactosuria, which is very common during the later weeks of pregnancy and the puerperium, also gives a positive copper reduction. Many of the statements which indicate glycosuria as being present in a large per cent. of cases must include those of lactosuria. For instance, according to H. Blott, all parturient and nursing women, and one half of all pregnant women show glucose in their urine at some time. J. Ney demonstrated the condition in four fifths of 148 nursing and one sixth of 24 pregnant women. It would seem that a careful differentiation would considerably reduce these figures. J. W. Williams, *Am. Jnl. Med. Scie.*, January, 1909, gives the following figures concerning true glycosuria. In 3000, glycosuria was found at some time during pregnancy or puerperium, 167 times, or 5.7 per cent., as follows: Pregnancy, 0.8 per cent.; puerperium alone, 45.7 per cent.; in both, 0.2 per cent. Biweekly urine examinations were made with Fehling's, confirmed by fermentation. He admits that more frequent or more minute tests might have given higher figures, but these probably include all cases of any significance, and more nearly approaches conditions as we find them in private work. Before classing our case as glycosuria we must then confirm the copper test by fermentation, phenylhydrazene, or the polariscope. Fermentation is the simplest, and positive findings may be taken as sufficient to confirm the presence of glucose. Lactosuria, as already stated, is a frequent finding, probably being present at some time in nearly all pregnant or parturient women. So far as I am able to learn, it is of little significance, merely indicating activity in the breasts, and is associated with lactation. The main danger is that its discovery may lead to an erroneous diagnosis of diabetes.

Having excluded other factors and discovered true glycosuria, what is the significance? The Germans speak of a glycosuria or diabetes of pregnancy as of slight importance. The English, since Mathews Duncan, consider it a grave disorder with a high mortality, both for mother and fetus. The explanation for this divergence of opinion lies in the fact that the Germans include many of the very mild cases, and I believe many of lactosuria. Since true diabetes is very rare, their mortality is low. Mathews Duncan, in 1882, reported 22 pregnancies complicated by diabetes, and of the 16 women in his report, 4 died of coma or collapse in labor or puerperium, and 7 of diabetes or tuberculosis within two years. The fetal mortality was 47 per cent. The English authors apparently have not included the milder cases of glycosuria, hence their fear of the complication.

In considering glycosuria we must bear in mind that while the mere presence of sugar in the urine does not necessarily mean diabetes, amounts sufficient to give a positive copper reduction and fermentation are not normal. Therefore, its cause and significance in any case must be as nearly as possible determined. Glycosuria may be due to pathological changes in the kidney which allow the excretion of glucose, as in the late stages of severe Bright's disease, or to the effect of certain drugs, phloridzin. Neither of these factors is important in pregnancy and may be neglected. On the other hand, glycosuria is associated with hyperglycemia, for when the amount of sugar in the blood passes normal, the excess is excreted in the urine. There are four possible factors to explain such a condition. First, an abnormally high intake of starch or sugar in the diet of the individual. The capricious or unusual appetite of pregnant women may thus give rise to an alimentary glycosuria. Second, an abnormally low assimilation limit for carbohydrates. This varies in individuals, and is known to be decreased during pregnancy. Brocard tested 17 pregnant and 17 nonpregnant women and brought out the following facts:

50 grams of glucose caused glycosuria in 50 per cent. of pregnant and in 11 per cent. nonpregnant.
80 grams of glucose caused glycosuria in 70 per cent. of pregnant and in 15 per cent. nonpregnant.
100 grams of glucose caused glycosuria in 70 per cent. of pregnant and in 16 per cent. nonpregnant.
150 grams of glucose caused glycosuria in 88 per cent. of pregnant and in 19 per cent. nonpregnant.
200 grams of glucose caused glycosuria in 100 per cent. of pregnant and in 29 per cent. nonpregnant.

So far as I know, no one has explained the reason for this condition, but it is well recognized. The added burden of pregnancy may be supposed to exert a deleterious effect upon the carbohydrate equilibrium. It would be interesting to determine whether these women ever fully recover. In other words, if they ever again reach their normal assimilation limit. In any event, we must recognize that a certain number of pregnant women will develop a glycosuria of this kind who are not diabetic. Third, it has been suggested that in some cases the glycosuria is due to a toxemia from the products of conception. Either there is an absorption of glycogen from the fetus or placenta or certain toxines are taken up which, acting on the mother, lower her assimilation limit. Fourth, we have the definite condition, diabetes. From the preceding it is evident that glycosuria may be found under a variety of conditions. It may be transitory, associated with some particular article of diet, and should clear up on the removal of the cause. Williams cites a case due to the use of large amounts of senna tea, in which the glucose disappeared from the urine when other cathartics were substituted. When the cause is recognized, these cases are of little significance and offer slight doubt as to prognosis. In the second group, due to the lowered assimilation limit, the amount of sugar rarely exceeds 1 per cent., and there are no other symptoms of diabetes. The glycosuria should disappear on a starch free or even a moderately restricted diet, and permanently after labor on an ordinary diet. Otherwise the condition more nearly approaches that of diabetes. In any case the woman must be kept under close observation for a considerable time, since it is often impossible to say in a given instance that we are dealing with simply a glycosuria and not a beginning diabetes. The condition is likely to reappear in succeeding pregnancies and in a more serious form, and the effect on the woman is often positively harmful in permanently lowering her tolerance to carbohydrates. However, in the absence of other symptoms the woman may go through a normal labor and puerperium.

We must agree that diabetes, besides being a glycosuria, is a chronic, progressive, constitutional disease, characterized by certain definite symptoms: polyuria, hunger, excessive thirst, skin irritation, persistent loss of weight, later a toxemia, with the presence in the urine of acetone, diacetic acid, and oxybutyric acid. It is then manifestly improper to class as diabetes cases of glycosuria of pregnancy in the absence of other symptoms unless the condition persists after labor.

It has been demonstrated that we may have (1) pregnancy in the diabetic or (2) diabetes in the pregnant. Diabetes is more likely to occur in women at or near the menopause, and when occurring in young women is associated with atrophic changes in the genital organs, so that diabetic women are not likely to become pregnant. When such does occur it is probable that the diabetic condition is relatively mild. Again the glycosuria or diabetes, though previously present, may be first recognized during pregnancy. Eshner, *American Jnl. Med. Sciences*, September 9, 1907, quotes H. D. Fry to the effect that where a predisposition to diabetes exists, pregnancy may act as an exciting cause or may aggravate the condition if already present. It is believed that the prognosis is better in the case of the woman previously diabetic than where severe diabetes develops during pregnancy. Eshner's case is remarkable for the remission of a severe diabetes during pregnancy and its recurrence after labor. It is difficult to estimate the frequency of either complication, as only isolated cases are reported, but they must be quite unusual, as no collection which I have found includes more than 75 cases. The combination is a most serious one both for mother and child. Death of the fetus in utero followed by abortion, premature labor, or still-birth occurs in a large percentage of cases. For the mother, pregnancy is a constant strain on her organism, and severe toxic symptoms may intervene at any time, especially during labor or the puerperium. Many others die weeks or months later from diabetes or tuberculosis.

Eshner and Williams each give interesting figures derived from cases in the literature. Eshner is more liberal in the diagnosis of diabetes, and includes some cases which Williams rejects, since the symptoms all cleared up after labor. He has collected 39 pregnancies in 35 women in whom diabetes complicated pregnancy in 27 and pregnancy occurred in 8 diabetics. In 28 pregnancies the fetus was aborted or still-born and in 11 the baby was born alive and healthy.

Of the mothers, 19 died, 4 after temporary improvement; 3 persisted or grew worse, 7 recurred in subsequent pregnancies, and 10 improved or recovered. Williams' series includes 83 pregnancies divided as follows: 57 of pregnancy in diabetics, 9 of true diabetes in pregnancy, and 15 of doubtful glycosuria in pregnancy which he does not class as diabetes, since all symptoms cleared up after confinement. In the first group there were 57 pregnancies in 34 women, with a gross maternal mortality of 25 per cent., of which about one half occurred in labor or puerperium; 50.8 per cent. of the babies lived, 36.8 per cent. were still born, 12.2 per cent. aborted, and 2 died within three days. The second group included 9 pregnancies in 9 women in which pregnancy was complicated by true diabetes, which was fatal or persisted after labor as diabetes. Of these nine women, 5 died in labor or puerperium and 2 more within 15 months, and the other 2 persisted as undoubted diabetes. The fetal mortality was 67 per cent. In the third group we have 15 pregnancies in 10 women complicated by a severe glycosuria doubtfully diabetic, but which cleared up after puerperium, and of course no maternal mortality. The 15 pregnancies resulted in 10 living children at term, 4 were born dead, 1 prematurely delivered at 8 months and died 3 months later. Combining the 9 which were unquestionably diabetic and the 10 doubtfully so, we have 24 pregnancies in 19 women, of whom 10 lived and were apparently normal some time after labor, 2 had persistent diabetes; 3 of the 10 doubtful ones had recurrence of the glycosuria, 5 died in labor or puerperium and 2 more within 15 months. The 24 pregnancies resulted in 12 normal living babies, 9 died in utero, 1 seven months baby died soon after, and 2 died within 13 hours. From these figures I conclude that a glycosuria of sufficient persistency and severity to be classed as a probable diabetic is an extremely serious complication.

The treatment is essentially that of diabetes, which is a large subject in itself. Every such suspicious case should be placed temporarily on a starch free diet. Should the sugar disappear promptly from the urine the case may probably be classed as a mild one and carbohydrates be cautiously added to the diet. In this way the tolerance for starch may possibly be increased. Extreme care must be taken to avoid the onset of toxic symptoms, which are probably more easily introduced during pregnancy. The onset of headache, dizziness or vertigo, etc., is the indication for prompt and vigorous treatment, opening the bowels by oil and enemas, the use of sodium bicarbonate in large doses, and an increase in the sugar intake. In my case I found that the use of oatmeal in various forms was well tolerated and satisfactory. The urine should be examined at frequent intervals, giving special attention to the following points: 24 hour amount, specific gravity, quantitative for sugar, ammonia, possibly a nitrogen partition, and tests for the presence of acetone, diacetic or oxybutyric acid. Goodall and Joselin, *Boston Medical and Surgical Jnl.*, May 7, 1908, give the following interesting conclusions: I. Quantities of ammonia reaching 5 grams in the 24 hour urine indicate an extremely serious acidosis, usually fatal within a year. II. Patients under 40 tolerate an acidosis estimated in terms of 4 to 5 grams of ammonia better than those over 50 do an acidosis of 2½ to 4 grams. III. A considerable acidosis in patients over 50 is of serious prognostic import. IV. A knowledge of the ammonia excretion usually helps in the treatment and gives warning of impending danger. In my case it was found that the ammonia reached 4 to 4½ grams in the presence of beginning toxic symptoms and dropped to 1½ to 2 grams under treatment with a remission of symptoms.

The principal interest obstetrically is the question of interruption of pregnancy. Persistent loss of weight, evidences of toxemia not easily controlled, death of the fetus, increase in the amount of sugar in spite of treatment, are the chief indications for such interference. The product of conception is not entitled to the usual consideration on account of the extremely high fetal mortality. While the induction of labor is usually a simple operation it may involve considerable shock to the mother and precipitate diabetic coma. As a rule pregnancy can have only a deleterious effect upon the diabetes, while the chance of producing a healthy living child is comparatively slight, and a serious glycosuria is a grave complication in pregnancy. Some go so far as to advocate the interruption of pregnancy as soon as the diagnosis of diabetes is definitely made. Others only in the presence of hydramnios, a not uncommon occurrence, contracted pelvis or an unusually large child. In case of death of the fetus, the uterus should be emptied by the simplest procedure. Where the diabetic condition can be kept under control by simple dietetic measures, the pregnancy may be allowed to go on with fair safety to mother and child. However, in such cases both physician and patient must have a keen appreciation of the risk and be prepared for interference at any time. I would be unwilling to take the responsibility unless she could be kept under close observation and either she or her family thoroughly understand the probabilities. If the welfare of the mother be the first consideration, the pregnancy will be interrupted as soon as one is satisfied as to the nature of the glycosuric condition. Unless the family is extremely desirous of children and are willing to assume the added risk this would be the safest course. A woman suffering from diabetes should not become pregnant, or if this occurs it should be interrupted early in its course. The question as to advice to a woman who has developed a severe glycosuria in one pregnancy is a serious one. Cases are reported where such women went through succeeding pregnancies successfully and without complications. On the other hand, there are cases where the glycosuria recurs, becomes more severe, or true diabetes with toxic symptoms or coma develops. Therefore, I believe that any woman who has shown a persistent high grade glycosuria during pregnancy should be considered as having an unusual tendency to diabetes, and had best not undergo the burden of further pregnancies.

To conclude: I. In diagnosing severe glycosuria, eliminate other reducing substances and transitory forms. Include only those persisting in spite of treatment or showing definite diabetic symptoms. II. The prognosis is guarded in any case, and is bad in marked ones, both for mother and child. III. Interruption of pregnancy is advisable if the patient cannot be closely observed, or if symptoms are not controlled by careful treatment. IV. A woman who has shown definitely diabetic symptoms in one pregnancy is undergoing an unwise risk in going through a subsequent one.

The case which I had under observation was briefly as follows: A primapara, with a negative personal and family history. Last menstruation January 15; expected date of confinement October 22, 1912. Pregnancy normal, except that after sugar was found in the urine the patient in response to questions said that she had noticed that she was drinking and passing large quantities of water, had an enormous appetite, also a craving for sweets and was constipated.

Urine examination, 7, 26, 12. Sp. gr. 1.018 acid, albumen, no sugar.

Urine examination, 8, 15, 12. Sp. gr. 1.030, acid, albumen, no sugar present by Haines' test.

8, 16, 12. Physical examination; well nourished, slight thyroid enlargement, thorax negative, uterus extends to three fingers' breadth below xyphoid, head in the fundus, fetal pulse distinct and normal, pelvic measurements: spines, 26 c.m.; crests, 29 c.m.; trochanters, 30 c.m.; Baudaelocque's, 20 c.m. Weight, 137 lbs.; urine ferments with yeast.

8, 29, 12, 24 hour, amount 76 oz. Sp. gr. 1.020, acid, no albumen, 3 to 4 drops of urine give positive Haines'. Weight 139, this following a moderately restricted diet.

9, 12, 12. Weight, 140 lbs. 24 hour amount 90 oz. Sp. gr. 1.018, acid, no albumen, 1.3 per cent. sugar, no diacetic acid.

9, 23, 12 to 9, 27. Patient constipated; had severe headache, and was somewhat dizzy, 9, 24. Urine, 24 hour amount 84 oz., acid, no albumen, sugar 2 per cent., diacetic acid present, ammonia 4 grams. Physical examination: patient bright, fetal pulse distinctly heard, head engaging, cervix soft and obliterated. At this time intervention was seriously considered, and the patient was purged, given sodium bicarbonate and starchy food. As the symptoms cleared up it was thought unwise to run the risk of a surgical delivery at that time.

10, 2, 12. Weight, 142 lbs., 24 hour urine 76 oz. Sp. gr. 1.018, acid, no albumen, sugar, 8 per cent. ammonia, 2.4 grams, no diacetic acid.

10, 10, 12. Weight, 137½ lbs., 24 hour urine 112 oz. Sp. gr. 1.012, acid, sugar 1.1 per cent.

10, 17, 12. Weight, 139 lbs., 24 hour urine 84 oz. Sp. gr. 1.016, acid, sugar 1.2 per cent., no diacetic acid. Labor 10, 26, 12, after several periods of moderate pains for a week preceding; second stage slow and tedious, terminated by a normal delivery with baby in L. I. O. A. with no complications and a normal puerperium. Child was a healthy girl, weight 6½ lbs.

10, 28, 12. Urine, Sp. gr. 1.015, acid, no albumen, no sugar by Haines' or fermentation.

11, 5, 12. Urine, Sp. gr. 1.022, acid, no albumen, no sugar.

11, 8, 12. Urine 24 hours amount 35 oz. Sp. gr. 1.022, no albumen, no sugar.

This case then was one of severe glycosuria, as the urine fermented on several tests, and there was considerable evidence of toxemia, which entirely cleared up after labor while the patient was on an ordinary diet.

SECOND BIRTH

By Ralcy Husted Bell, M.D.
New York

The mentality of man *en masse* has learned many things which in time will profit the doctors. We have been threatened with hell so long without getting scorched that we have about ceased troubling over the matter. We have swallowed so many drugs under false promises that we have turned to hygiene instead. We have been lied to so much, and we have shied at the truth so often, that we have become less tolerant of falsehood and less afraid of the truth. We have progressed so far that we are beginning to recognize a little truth here and there when we see it without making faces at it or heaving a brick. All this augurs well for the doctors. They will become educated, unaware perhaps, despite themselves.

Now when they shall become educated they will regret the time wasted on nonessentials. They will see that the principal problem for man to solve is himself. They will become aware that the human being has at least two births, of which the most important takes place at adolescence—when he is born into *adulthood.* Of course this birth is more protracted than the first, and it requires *accoucheurs* of greater wisdom and skill. For this is when the character is born. A breech-presentation must be corrected at once. A soul must be born head-first. When it is born wrong-end-to it soon becomes a menace to society and a reproach to the doctors.

During this second birth "congenital" blemishes of character must be effaced, and the soul should be protected until it can care for itself—until its shell forms and hardens. If the doctors would know the dangers of this period, its mysterious phenomena, its tragedies, its hopes, and its tendencies toward degeneration, let them read the two volumes called *Adolescence,* by Stanley Hall. Stanley Hall is the doctors' short-cut to wisdom. He is more than that. He is a sort of *Salvator Medicorum.* Through him we may learn something of the soul in its molding, if not precisely in its making.

The birth of adolescence, then, involves many things which are both physiologically and psychically complex and far-reaching. There are potential parenthood and its fitness, changes in racial tissue, the bursting of internal springs of secretion which are as potent as they are mysterious. Some of these secretions modify the development of distant parts of the body. Some crack the boy's voice, some awaken sleeping cells in the skin of his chin, and forthwith there are sprouting hairs; others govern the lines of form, both male and female. But more inscrutable than these changes and their causes are the phenomena which play upon the soul of boy and girl, working subtle differences between the two as they are born into man and woman. What seems to be new energy appears at this time. Whence it comes we can guess. Whither it goes depends. Shall we regard it as fatalists or as doctors in reason, physicians in logic, or merely as dispensers of pills? This much we can say: The nascent energy is loaded with possibility; it is potent for good and powerful for harm. It is the most dynamic force in the universe, and when understood it may prove to be the most beneficent.

At present it is more dangerous than dynamite, and it needs watching. For some unknown reason it works degeneration. Why it should become devolutionary we do not know any more than we know the reason why it may also halo the soul and deify our kind. We do know that it presents many ugly as well as many beautiful facts with which we have to live. We know that in not a few particulars the adult man, compared with the child, is a physical degenerate. Fortunately this is less true of women, else we should soon all return to apedom at the age of forty.

Adolescence in the human being differs from that of all other animals. In man puberty means more than the power of reproduction. It includes an era of sometimes a decade, and sometimes of several, in which all the seeds of personal development are sown. And if the seeds do not germinate in this era, then they must lie forever sterile throughout all the mortal cycle of his soul. The gracious seasons of summer and autumn will not appear in his calendar, but he will step from the cradle into the snows of winter. I do not mean to imply that these seeds of personal progress are sown by the hand of environment wholly, nor yet all by the hand of nurture, but rather, I take it, are they scattered by the hands both of nurture and nature, which when clasped together hold something which we have long called Fate.

The province of the *accoucheur* of puberty is in the fields of nurture, since the modifications of nature will be slight at most. With nurture, therefore, these doctors of the future will have most to do—*nurture* both of body and mind. In this practice there will be no room for empiricism. Each soul emerging into the new world of adulthood will require its own special and even peculiar treatment at the hands of the wise doctors. And they will begin their treatment while the soul still gestates in childhood, just as they will continue it through the teething of maturity. The treatment must be cautious, pliable, and, above all, sympathetic.

Puberty is divided into three stages: physical, mental, and moral. These stages never occur simultaneously. And the moral is the most important stage because it is the one at which the individual's *ideals* blossom into being. Almost everything in his subsequent life that is worth while depends upon this—*the spring-time of the ideals.* This is the period of life's sacred *fêtes.* We all attend them once—some in good company and some in bad. The psychology of puberty is the psychology of the future—no small subject, surely!

The Bible is not a sacred book to us all; but it is a book which I read in conjunction with history, poetry and fiction. The more I read it the more I am impressed with the insight of the ancient writers. I see that they had wonderful glimpses of what science now regards as truth. Perhaps we read things *into* the Bible by the candle of science which the old scribes did not put there with *prepense.* At all events, there are metaphorical elements in the Bible which read like twentieth century statements of scientific fact. *Except a man be born again,* and so forth. It was not long ago when that statement was accepted by the intelligent only for its poetic value. Now we know that he is born twice before he becomes a man; and thousands never reach manhood even at that. Fresh from his mother's womb the male *homo* takes on the flesh of a cherub, and very soon thereafter the morals of a little barbarian. At his second birth he issues from the womb of the race with a highly ethical soul, maybe, but with a body tending to revert toward that of the ape. Of course the medical and spiritual doctors could tell us all about this if they were not too modest.

Again, to attain your full heritage, *ye . . . become as little children.* Eugenics has established the truth of these statements, whether we regard them as lucky guesses or as words of wisdom.

We have all laughed a good deal—especially we of the Medical brotherhood, by way of showing off our superiority—at the vulgar notion of the "born doctor." The joke is funny, no doubt—but whom is it on? I sometimes think that it is not wholly on the homely *auctor vulgaris.* For who is really the doctor if he is not the "born doctor"; the doctor whose intelligence during his adolescent birth blossomed on the highest branches of his mind and make possible his rare fruit of character—possible the higher emotions—possible the *will* to work the wonders of self-control? The "born doctors," then, are those born into maturity with the capability of acquiring special and general education—*being born again, not of corruptible seed, but of incorruptible.* The second birth fixes the character. So let us not be too flippant, or too hasty in our laughter lest it mock us—lest we but spit in the wind and smear our own faces with the contempt ejected at others.

The doctor needs education in the requirements of personality more than in the use of drugs. *Throw physic to the dogs,* if you will, doctor, or not according to your lights, but if you neglect *personality* you neglect everything. Personality is the thing. If you understand a little about that you will never be rated with the has-beens—moss will not grow on your back, however much it may be bent by years; of you it shall not be said: *He has given her physic and you must needs bestow her funeral.* The laws of personality are the vital laws to you. In your own case, as in others, they form and fix something at adolescence which ever after remains essentially changeless.

The doctor in history is as big a sinner as any amongst us. He has made his mistakes as coldbloodedly as any other *homarus*. He needs education as much, and something to be educated more. He has witnessed the ancient ceremonies attending the birth of adulthood through a missionary's spectacles. He has interpreted these ceremonies with the acumen of a pious bone-head. He oftener records his own prurient emotions than the facts of history. He seldom sees deeper than the surface letter of the law. He would have us believe that the early ceremonies of initiation into the new world of adolescence have no significance beyond that of the orgy—that these rites still practiced by some savage groups have their origin in lust—that they mean nothing more than depraved debauchery. But the modern anthropologist has set us right while boxing the yet articulated ears of these doctors. We now see that behind these primitive customs inducting youth into adult life there is a spiritual necessity, or a least a spiritual significance. We are able to follow its meaning from very early times down to the classic Roman. We see that it exhibits itself through various sociological phenomena—even in forms of dress, culminating and virtually ending in the *toga virilis*.

Our second birth is the birth of love. The soul finds itself master of new energy. Dim Gothic vistas lead away to romantic realms. Fresh landscapes asparkle with the dew of creation and fragrant with flowers of color spread out before the eyes. A magic sun rises above the horizon—and rises but this once in life. Poetry begins to sing in the heart, and music whispers to the ear. Art makes all this new world populous with dreams. Thus at adolescence the humblest peasant becomes a discoverer greater than Columbus. And it may be the only time that the conscious soul knows perfect freedom, since at the final liberation death is dumb or our ears are mute.

A SQUARE DEAL FOR THE NEWBORN CHILD

By Douglas H. Stewart, M.D.

New York

"Seventy five per cent. of American school children are in need of medical attention" (*Am. Practitioner*, page 450, September, 1912). This is the title of an editorial, and if its major premise be allowed, and the statistics gathered by the U. S. Bureau of Education, upon which its statements are based, be admitted, then these words of mine are "apples of gold" being fitly spoken and teaching one way in which each and every item in the evil account may be made to show a lessening estimate.

The simple suggestions herein embodied, if carried out with ordinary care, will result in giving each newborn normal child a fair chance and a square deal in its start to fight for existence. But, on the contrary, neglect will insure that the statistics of the future will remain as they are at present. To-morrow will be as now, except for the working out of the forces of heredity. These may be surmised through the contemplation of the fact that the children of to-day, all told, can promise but twenty five per cent. of normal adults when their turn at parenthood arrives. We possess the knowledge required to brighten the dark outlook; but the information is scattered through the writings of special workers, and therefore may only come piecemeal, or not at all, into the ken of the general practitioner.

Take, for instance, the common condition of tongue tie. Every single one should be cut if it impedes the motion of the tongue; for the usual good reason that it interferes with sucking and nutrition at the moment; but why should the physician forget that the tongue is the implement that shapes, molds and fashions the mouth, the nose, the pharynx, the face and indirectly the orbits and the skull? Why should the surgeon teach that an ordinary ankyloglossia will correct itself in time and should not be interfered with? At the same time the orthodontist declares that when the tongue tie has cured itself the child may look like a rabbit, a bull dog, a monkey or some other animal. If the tongue cannot move freely the mouth and nose are distorted and misshapen; and respiration, mastication and cognate functions are impeded and may be overthrown.

Surely a high penalty indeed to pay for the fearfully miscalled kindness implied in the omission of one necessary snip of the scissors. Any one can set a tongue free to perform its work, and if he can at the same time impress upon the parents the fact that the tongue when freed can only work in a shut and empty mouth, then there is small fear for the future health and comeliness of that child. I have gone extensively into the subject elsewhere (Trans. Am. Obstets. and Gynecologists, 1912).

Acquired umbilical hernia is another commonly neglected matter. With a female child not the slightest dependence should be placed on truss, plaster or bandage. These simply defer the issue until the girl is married and in labor. If one makes a purse string suture of a pure gum elastic ligature, surrounds the point of exit subcutaneously, pushes in and retains the bowel with a Mayo tucker, and finally draws the purse string very tight, withdraws the tucker and ties three firm knots, then he makes fairly sure of the cutting out of his ligature and obtains a strong cicatricial seal of the hernial sack. The hernia will give no more trouble. The aforesaid, it may be well to state, applies solely to true hernia and not to deficient abdominal walls due to arrest of development (omphalocele).

If one makes certain that the foreskin (prepuce) is free in the male and introduce a lubricated finger into the rectum of both sexes he is doing a wise and advisable thing; because if the physician ascertains that the babies' tongue, prepuce and rectum are free, and that there is no umbilical protrusion, he is also making sure that no such list of millions of handicapped children can ever again be true in America; or, if it is accurate, his patients will not swell its mortifying and unnecessary totals of fifteen millions of handicapped children: his patients will have a square deal.

THE EFFECTS OF SALVARSAN UPON THE AUDITORY NERVE

By ALBERT BARDES, M.D.
New York

Permit me to call the attention of the profession to the danger of impairing the hearing, by giving an excess of salvarsan. The hearing of forty seven patients who received the drug, mostly intravenously, was tested. Of this number six have become hard of hearing. Before they received the treatment their hearing was normal. In four of the cases the aural disturbance was not noticed until the second injection had been given.

Arsenic, like all other powerful drugs, is highly injurious if the proper dose is exceeded. There can be no question that salvarsan is immeasurably superior to any other drug for syphilis. The knowledge that one dose is insufficient to effect a cure has led to the repeated and often indiscriminate use of the drug. Therein lies the danger.

It seems illogical to give the same dose of so dangerous a drug as arsenic to all syphilitics, without respect to age, weight or tolerance, when we all know that certain individuals have a decided idiosyncrasy for it. The organ that is especially susceptible to its influence is the delicate and highly sensitized organ of hearing. Other drugs that have a selective action upon this organ are quinine and the salicylates. When these drugs are given in excess, the ears begin to buzz, and frequently this buzzing remains, and is the prelude of a progressive deafness.

It is perhaps fortunate that much of the salvarsan that is thrown into the circulation when given intravenously is rapidly eliminated by the kidneys. In this way its toxic effect upon the system is lessened.

In all of my cases the onset was the same, that is, in from a week to a month after the injection head noises were perceived. In proportion as the noise grew louder the hearing became poorer. In two instances the noise is now subsiding, but alas! the deafness fails to improve.

An examination of the ears and adnexa of these patients revealed no morbid changes. Hearing tests showed diminished aerial and bone conduction, especially for the high tones. The caloric tests showed dulled labyrinthian response. There are no symptoms of middle ear or internal ear irritation, such as pain, dizziness, vomiting or nystagmus. The symptoms of the patients are those of a lesion affecting the auditory nerve.

I would suggest that the hearing be tested each time before giving salvarsan. If it is poor, or if head noises are present, the drug should be given with caution, and if the hearing is affected by the salvarsan, it should not be repeated until the ears are normal.

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EDITORIALS

THE STRAIN OF MODERN LIFE

No doubt the stress and strain of life to-day is conducive to nervous complaints, as well as to arterial, cardiac and gastrointestinal disturbances. We are living in an age of rapid development; the demands of commerce, active and radical changes in manufacturing industries, progress in industrial and other sciences make demands upon the activities and technical knowledge that only the strong and mentally well equipped can meet. Others, those without special training or skill; those not mentally or physically equipped: the mediocre, small man in his efforts to keep pace with the development, growth of the strong, fall behind and are soon left in the hopeless majority. The scale with which things are carried on; the ceaseless onward march of events will not even tolerate the silent spectator, for to stand still is rapidly to lose position, wealth, a place. And yet with all of this hurry, one is amazed at the outward calm, the poise of the man of affairs of to-day. He, at least, is not agitated, comes and goes, controls, whips into line opposing forces, determines in a day alone enterprises that it would have taken a committee or board months to bring about but a generation or two ago, and all without noise. And yet it is claimed that circulatory disturbances, gastric complaints are ever in evidence; that men are destroying themselves because they are especially much too mentally active. They are scolded, berated, warned that they are going the pace that kills. They take too little rest, eat and drink too much; that arteriosclerosis, cardiac and gastric disturbances will surely follow. We read that man is old, worn out at 60 years of age, but statistics prove that the average length of life is between six and seven years longer than a century ago. Surely man is better housed, better fed and clothed, better educated, has more and varied amusements, pleasures; is as refined, can travel further and see more, is handsomer, more charitable; no more selfish than a few generations since. There is less to fear from disease, epidemics, wars; better and more humane treatment when sick or injured. Wives and children are better cared for; better educated, dressed, entertained; are healthier, happier, more beautiful than in the history of the world as we know it. True there are the neuropathic sanitariums, while men die from circulatory ailments, arteriosclerosis, kidney troubles, intoxications of various kinds; in rare instances we are called upon to treat gout—not as often by far as in ye olden times—but, like the poor, these are always with us. There are always those who are ever ready to proclaim from the housetops, or through the press over their names, troubles, evil doings, wrong living, and also ever ready to offer correct advice as to remedying these and all other evils, who never think of practicing what they preach. We believe in educating the people in hygiene and prophylaxis, but would not they be happier, more content if they knew less of the pathology and treatment of the ills they are forever assured they have or will have?

Verily this is one beautiful, very beautiful world, where we can and should live like sane men and women, temperate in all that we do, helpful to those less fortunate than ourselves, keeping body, mind and soul clean, thus insuring health and happiness.

O blessed health! thou art above all gold and treasure; 'tis thou who enlargest the soul, and openest all its powers to receive instruction, and to relish virtue. He that has thee has little more to wish for; and he who is so wretched as to want thee wants everything with thee.

HEREDITY AND DISEASE

That the evidence on inheritance in man is often unsatisfactory is well known to those who have given the subject the most careful study. The reasons for this lack of trustworthy information are many, as was pointed out recently by Professor Hickson at a meeting of the Manchester Pathological Society, *Medical Press,* November 13, 1912. These reasons seem to be that civilized man presents many difficulties for investigations. He differs from all other animals in the extraordinary length of his period of juvenility; reaching physical maturity at about 15 years of age, mental maturity much later. Man appears to require for his proper development a long period in which he may be influenced by his environment; he is much more a creature of environment than are other animals. It thus becomes difficult to distinguish between innate and acquired characters. Another difficulty is that man is a very slow breeding animal; it is thus difficult to get a sufficiently large number of cases of transmission of a particular character. Few statistics include more than three or four generations, or from 100 to 150 individuals. In investigations of certain vegetable and the lower orders of animal life, peas or mice, for instance, biologists are not satisfied with less than several thousand individual specimens. There is a third difficulty, not peculiar to man, the possibility of transmission of characters by the placental blood. Such characters are, of course, not innate. This term can only be applied to characters transmitted through the germ cell. For these reasons we are always sceptical of statistics bearing on the transmission of acquired characters. It is very doubtful if a hard and fast line can be drawn between fluctuations and mutations. There are, undoubtedly, mutations which are transmitted without blending, but there are others in which there appear to be only a difficulty of blending. In the case of an extra digit, blending could only mean the production of an extra half digit. Now, experiments on poultry have seemed to show that the transmission of an extra toe obeyed Mendelian laws, but on analysis of the figures it appears that many of the extra toes are only half toes, which can equally well be interpreted as blending.

DUST, THE UBIQUITOUS

We have gotten rid of many evils that annoyed and caused injuries to our ancestors, but there are still left nuisances great and small, which make life almost unbearable. It is not necessary nowadays for one to wear a sword for protection, or to envelop one's self in a cloak with which to conceal his identity; nor are we in danger of being knocked on the head by a peeved neighbor, albeit, we have the highwayman, dust and noise very much in evidence. Officers of the law give us a large measure of protection from the highwayman, but dust and noise are really ubiquitous. How to nullify these vexatious evils is a question which has received much thought, but as yet no solution. Competent statisticians have estimated that there are four thousand millions of dust particles in an average puff of cigarette smoke; while scientists declare that while chemically pure water is a nonconductor of electricity, if one grain of salt be added to a hundred tons of water, the electric current will link each molecule of water to its neighbor, the bridge being the infinitesimal quantity of salt. We thus realize what is meant by the expression divisibility of matter. To realize this and know of all the noxious and nauseating substances contained in the dust in our streets, homes, places of amusement, etc., we wonder with increasing horror why the chief method of getting rid of dust is to disturb it from its resting place and send it spinning through the air on its maleficent mission.

Dust ceases to be dust when firmly attached to other bodies. A wet duster, damp cloth, tar or crude oil annihilates it. The popular appreciation of this fact would materially reduce the sick rate and the labor and expense of our street cleaning department, as well as care for the sanitary condition of places of amusement and our homes.

MONTESSORI METHOD OF CHILD STUDY

The reign of terror that once prevailed in young people's schools or "seminaries," so graphically depicted by Charles Dickens, is happily a condition of the past. Corporal punishment is now seldom resorted to; in the elementary schools, public or private, instructors must devise disciplinary measures other than the use of the rod, or lay themselves liable for an action for assault by the parent. We are not prepared to take issue with the modern methods. It may be that the present methods are too far removed from those of the middle of the last century; that a middle course would be preferable to either the old or new. We know of some modern methods used that seem even more cruel to a child than a mild spanking or a few applications of a switch.

A new system for discipline based on the self control voluntarily imposed by the children upon themselves has recently come into prominence abroad and to a very limited extent here, known as the Montessori method of child study. Dr. Montessori, the first Italian lady physician, is responsible for it. She claims that discipline is secured by enfranchising liberty and not punishment or rewards. The results are said to be of great value in enabling young children speedily to acquire control of all voluntary movements, including those necessary for reading, writing and the study of mathematics.

FREE ANTITYPHOID VACCINES

The New York City Board of Health will with the advent of the New Year inoculate all who apply with antityphoid serum or vaccine, without cost, thus securing immunity against typhoid, which has prevailed in certain sections of the greater city for several months. Health Inspectors will make inoculations at the home of the applicant or at the central office of the department. The vaccines will also be furnished free to physicians. All requests for treatment must come through the attending physician.

This we regard a wise decision, for in this way only with the coöperation of the medical attendant will it be possible to stamp out typhoid. The best results, however, must follow immunization rather than treatment after the disease has become manifest, for it is certain from numerous experiments made in all parts of the world that immunity does follow with no byeffects.

It would be a good plan for all States and municipalities to follow this wise innovation to protect their citizens. It may follow that other vaccines, serums, etc., may yet be available for immunizing against other diseases, and thus prophylaxis become a reality.

HEREDITY AND DEGENERACY

Scholomovitch, in the *Roussky Vratch,* August 18, 1912, concludes that the generally accepted theory as to the hereditary transmission of degeneracy does not hold true. The rule, he maintains, is the leveling up of pathological hereditary abnormalities, the newer generation becoming more adapted to the struggle for existence than their parents. The normal condition, therefore, is not degeneration, but regeneration. The modern conception of eugenics is faulty, and the so called surgical prophylaxis is as repugnant as it is unsound. If the endogenous factors play such a minor rôle in the production of degeneracy, greater attention should be paid to the exogenous factors with a view of modifying the environmental influences.

BUTTER OR MARGARINE

We learn through some recent investigations that margarine has the same food value as butter, with an added advantage that it contains decidedly less of the soluble and volatile fatty acids. It is also cheaper and has quite an agreeable taste; at least in appearance, taste or flavor it is not distinguishable from that of good butter. We are sure it will be found much more clean and free from objectionable substances than dairy butter. If the consumer could see the conditions surrounding the making of much of the dairy butter, inspect the methods employed and the cleanliness of those who make and handle it, we think that a universal protest against its use would be in evidence.

NEW HOSPITAL FOR RUPTURED AND CRIPPLED

The New Hospital for the Relief of the Ruptured and Crippled on Forty Second Street, near Second Avenue, was formally opened a few days since. The new building is five stories and basement. An unusual feature of this building is the amount of outdoor space provided. Practically every ward and room has an extensive open air playground adjoining it, a large part of the sixth floor being arranged for outdoor treatment and recreation. It is hoped to have a summer home in connection with the institution.

GENIUS

"Genius is only the power of making continuous efforts. The line between failure and success is so fine that we scarcely know when we pass it—so fine that we are often on the line and do not know it. How many a man has thrown up his hands at a time when a little more effort, a little more patience, would have achieved success. As the tide goes clear out, so it comes clear in.

In business, sometimes, prospects may seem darkest when really they are on the turn. A little more persistence, a little more effort, and what seemed hopeless failure may turn to glorious success. There is no failure except in no longer trying."

DIGEST OF CURRENT MEDICAL LITERATURE

Fever: Its Cause and Treatment.—In an article on this subject by E. C. Hort, delivered at the Polyclinic, London, *Medical Press and Circular,* November 27, 1912, we find under Treatment—Palliative and Specific, the following: The palliative treatment is to a large extent merely the treatment of the symptoms of the feverish state. Apart from diet, rest, baths, adequate air supply, etc., reliance in the past has been chiefly placed on drugs mainly of coal tar origin. To-day we realize that the use of phenacetin, antipyrin, aspirin, salicin and similar preparations are of very limited value in the treatment of fever. At present we do not even know whether fever is a conservative process or not. Until we possess this knowledge it is an open question whether the use of these drugs is justifiable, except as a temporary expedient to relieve distress. Their continued use may, on the other hand, do considerable harm, even apart from their depressant effects. In the palliative treatment of hyperpyrexia there are other better methods employed, such as baths, sponging, etc. In the treatment, however, of hyperpyrexia he has sometimes obtained great benefit by the rectal injection of large quantities of hot saline solution. The immediate effect is to cause a still higher degree of fever. This is, however, in cases that have not been left too long, quickly followed by a fall of several degrees, the procedure, in fact, producing a crisis.

The specific treatment of fever, on the other hand, resolves itself into a question of a specific treatment of the condition that gives rise to fever. Since continued fever in man is in the majority of cases due to an infection, specific treatment becomes a question mainly of its prevention. Or in other words, we seek to prevent its appearance or continuance by successful prevention or treatment of the infection on which it depends. We either attempt to remove, or failing this to destroy or neutralize the action of the casual organisms, or a relative or absolute immunity to their action. The chief methods in use at present other than surgical for the specific treatment of fever are those of chemotherapy, serumtherapy, and vaccinetherapy. The successes obtained in specific chemotherapy by quinine, salvarsan and antimony in the treatment of malaria, syphilis and the trypanosomiasis, suggest a great future for this branch of specific treatment. How far the chemists will be able to provide us with colloidal metals in a relatively nontoxic state, for example, we shall soon know.

A second specific method of preventing or treating fever, vaccinetherapy, is still on trial. Of this there are two forms fundamentally different. In England the injections of emulsions of dead organisms for protective and therapeutic purposes is having an extensive trial. In the treatment of continued fever there is a widespread belief in their efficacy which cannot be set aside. Personally, Hort has not yet come across a single case of serious continued fever where the treatment can be credited with success. He has seen many cases where after extensive trial its failure was admitted. Apart from any therapeutic value there is no gainsaying the fact that toxic symptoms, not necessarily serious, do sometimes follow their injection; besides the shortness of time between injection and increase of fever leaves no doubt as to the relation between cause and effect. As soon as we are sure that the injection of adventitious pyrogen derived from the medium of growth is of no value, it will become very necessary to use only vaccines that have been freed from this contamination. If, on the other hand, it proves to be an advantage, it will then become necessary to determine what specific value can be ascribed to vaccines that are not thus contaminated, so far, that is, as the treatment or prevention of fever is concerned. The second form of vaccinetherapy consists in the injection of living organisms, and sometimes of dead that have been sensitized by incubation with immune serums. This method was originally introduced on an extensive scale by Sclavo for prevention of anthrax. It has since been taken up by Metchnikoff and Besredka and modified by them and other workers. So far it has been mainly used, though not entirely, for prophylactic purposes. The great point claimed for this method appears to be that living vaccines can be used with impunity and with better immunizing results, provided certain precautions are taken, if the organisms before injection are sensitized with immune serums. It is claimed that by this method the vaccines are to a large extent detoxicated, both as regards local and general reactions. though it does not appear that the pyrogen content from the media of growth is necessarily removed. It is much too early for general use of these vaccines, but it is possible that the method may entirely replace the somewhat haphazard method of dead vaccinetherapy at present under trial.

In the meanwhile the method opens up a wide field of development of the somewhat neglected science of immune serumtherapy. Hitherto we have believed that the scope of immune serums was restricted to the provision of passively immunizing agents. For instance, the unrivalled success of antidiphtheritic serum is generally believed to be merely a question of passive immunization. If, however, it be true that living vaccine becomes a better agent in the production of active immunity, if it be first sensitized with an immune serum, it is possible that in some diseases an antibacterial serum may be of greater value than an antitoxic, though in a different sense to that usually held. It is, in fact, legitimate to suggest that the real value of good immune serums (apart from diphtheria) may lie, not in their antitoxic or bactericidal properties so much as in their ability to sensitize *in vivo* the potential vaccines the infected body already holds. In such an event the immediate practical problem will be the determination of the kind of antigen to use in the preparation of such serums.

Reflex Stimulation of the Vagus Center in the Treatment of Disease.—We find in the *Caledonian Medical Journal,* Glasgow, Scotland, October, 1912, a very highly interesting and instructive article with the above title. Among other applications we find under Nausea and Vomiting Generally the following in abstract: Not only in reflex nausea and vomiting does stimulation of the vagus center, by blistering over the par vagum, exert a benign influence, but also in cases of pathological conditions of the stomach itself, and in my hands it has been found to act much more satisfactorily than sinapisms over the epigastrium and the other usual remedies.

No opportunity has yet arisen to try this method of treatment in the vomiting of pregnancy, but analogy leads one to expect similar relief in this condition also. It has been found very satisfactory in "sick headache."

The subject is a most interesting one, and the result of this treatment has been very gratifying, whatever the exact physiology may be.

One cannot but conclude that the vagus center and its neighborhood are really influenced, directly or reflexly, by the cutaneous stimulation over the course of the nerve, which lies so near the surface in the neck, with the result that its peripheral distribution, cardiopneumogastric, is powerfully affected, inducing a return to normal conditions of the organs innervated by it. Very severe irritation of the skin of the neck over the course of the nerve, applied to a large area, has been known to accelerate the normal heart beat, the afferent impulses sent to the medulla causing a diminution in the tone of the cardioinhibitory center in the medulla, which normally regulates the cardiac rate. In the case of Graves' disease referred to, the tachycardia was pathological and the cutaneous irritation mild; and here the afferent impulses had the opposite effect, i. e., increasing instead of diminishing the tone of the medullary cardioinhibitory vagus center, thus augmenting its controlling influence on the heart and slowing its rate.

Nor is there anything incompatible in the same remedy causing slowing of the heart by increased activity of the inhibitory fibers of the par vagum, and relaxation of bronchial spasm by diminished activity of the motor fibers of the same nerve. Various sets of fibers in the vagus can act quite independently, and can be influenced quite differently by various conditions.

With regard to the gastric influence exerted by the vagus center in the elimination of nausea, the exact method of its action is a matter for conjecture. The mechanism of the influence of reflex stimulation upon the centers concerned in nausea and vomiting has not, to my knowledge, been experimentally elucidated. It may be that the afferent impulses sent up the par vagum to the medulla so influence these centers that their action is suspended or neutralized.

In the absence of definite knowledge, one must be content to have recourse empirically to this method of treatment of nausea and vomiting by reflex stimulation of the medulla, since it is successful in achieving the end in view.

I have been unable to find any reference in any text book to such treatment of these morbid conditions, and venture to express the hope that it will be investigated by other physicians, believing that it will not be tried in vain.

The exact method of the production of reflex stimulation of the vagus, the skin directly over the course of the par vagum in the neck is irritated by applying linimentum iodi to an area the size of a shilling (somewhat less than our 25 cent piece) on both sides, immediately behind and below the angle of the lower jaw. As soon as blistering occurred the nausea rapidly subsided and disappeared in a few days, to reappear, though to a lesser extent, when the blistered parts had healed. Fresh blisters were induced just below the previous ones, when the nausea once more disappeared and never returned.

The Value of the Skipping Rope in the Treatment of Chronic Constipation.—A very great deal of what may be called "chronic simple constipation" is actually the product of treatment by medical men, says Herbert French, in A Clinical Lecture on Some Therapeutic Points, in the *Medical Press and Circular,* December 4, 1912. It is so easy to prescribe a laxative, or worse still, a purge, for a patient who complains that he is liverish and that his bowels do not act as well as he would like them to. The prescription is apt to be repeated. The patient may even be given a supply of pills to keep by him, one or two to be taken when he feels the need of them. The habit of taking them grows. Patients themselves often take purges in the form of proprietary pills without advice, and get into the way of depending upon them. Some parents prescribe purges for their children with too little thought. I am accustomed to state that many persons who begin with cascara or Epsom salt at fifteen years of age have to take calomel or podophyllin or something stronger at twenty five or thirty, and have to increase the dose and strength of what they need to move the bowels year by year until, figuratively speaking, in many instances at forty or forty five gunpowder will hardly do it. There can be no doubt but that a very great deal of chronic constipation, intestinal toxemia and the protean results of this can be directly traced to the treatment of simple constipation by purgatives without first trying nonmedicinal means. The first and most important of the latter is what may be called for short the cultivation of the regular habit, the patient trying to have the bowels move each day immediately after breakfast, or at some other more convenient time, but, as far as possible, at the same time each day until the bowels get into the habit of wanting to be moved at this, rather than any other time.

French lays particular stress upon a very simple accessory means of relieving chronic constipation, which is the use of the skipping rope for sixty seconds after the morning bath, and, if need be, for another sixty seconds at some other period of the day. The vigorous jolting movements he states given the whole body, the increased respiratory movements, the increased action of the heart and the exercise given the vasomotor system in controlling the alterations in the blood supply produced by the exercise are all beneficial, excepting under exceptional circumstances, such as definite heart disease and the like, but over and above this it seems that every time the patient skips over the rope, thus raising his legs off the floor, the sudden sharp contraction of the psoas and iliacus muscles directly influence the colon in front of them, and thus assist the activity of the latter, possibly increasing peristalsis, especially in the cecum and the sigmoid colon. Very frequently the effort of skipping even for so short a time as sixty seconds causes flatus to be passed, showing that the movements have an immediate effect upon the bowel contents.

A New Aspect of Nature. Vis Malefactrix Naturæ.—The healing power of "Nature's own sweet and cunning hand," says *the Medical Press and Circular*, October 30, 1912, "has been sung so often by the poets and bedside clinicians that we have almost come to regard it as perfect. We commend a system of treatment as 'natural,' and what higher praise can we give a remedy than that it is 'Nature's own'? If we look, however, at Nature's work with the modern eye of criticism we find her sometimes a poor enough bungler in therapeusis. She has three or four ways of dealing with all emergencies, and these are not always efficient. Fever, force, swelling and scar-tissue make up much of her armament, and we find her 'exerting an unwearied power' with one or other of these in season and out of season. If our body lodges a few pneumococci, Nature runs up our temperature in a very ineffective effort to kill the invaders. She pushes a stone along a tube never intended for such traffic, until its unfortunate owner collapses from the pain. Any local trouble is promptly dealt with by a swelling. Often this is comparatively harmless; but why obliterate an unfortunate child's glottis to attract attention to some slight laryngeal irritation? And then her methods of repair; 'one touch of Nature makes the whole world' scar-tissue, a substance that contracts when it should stretch, and stretches when it should contract, till our hospitals are 'rich with the spoils of Nature.' The trouble is that Nature has no second string. She has one way of dealing with a given condition, and if that fails—she keeps on doing it. Her methods are fairly satisfactory as a temporary treatment, but they do not bear the test of time—scar-tissue will fill a gap, but after a few weeks its failings become very obvious. If she would learn to apply a little more discrimination to the use of her remedies, she might even now live down the reproach we are sorry to say she has earned, of being somewhat of a short-sighted empiricist in many of her therapeutic efforts."

Tuberculous Infection.—Nietner, of Berlin, in an address before the New Medical School for Tuberculosis, *The Medical Press,* November 13, 1912, states that during the last ten years facts have been disclosed which go far to establish a conclusion that in a very large majority of cases tuberculosis infection occurs during the first years of life. Hamburger and Schlossmann practically agree that 90 per cent. of all children up to the completed twelfth year are infected; that tuberculosis is a true children's disease, is acquired during childhood, and must be prevented, treated and healed during childhood. Prof. Nietner affirms that in by far the greater number of cases the source of infection can be traced to the human subject suffering from "open" tuberculosis, and that infection is acquired through the close intercourse resulting from family life within the home. Only by preventive measures can we, therefore, hope for success. To prevent the child from becoming infected in its home without weakening those family ties which are so essential to the moral health of the nation, is a problem of the utmost complexity. He deprecates schemes for separating the child from its family, though every care should be taken to safeguard it in its own home. He declares that tuberculosis is not a school disease, and maintains that the school cannot justly be held responsible for the spread of infection. He attaches the utmost importance to a careful organization of the school medical service, and declares that to the school doctor alone was the power given to prevent latent tuberculosis developing into active disease in the children examined by him and kept under his supervision.

Unusual Manifestations of Serum Anaphylaxis: Neurotic Phenomena.—Paul Thaon, in *Revue de Médecine*, September 1912, reports a case in which a prophylactic injection of 10 c.c. of antitetanic serum, following a similar injection given four years before, caused an immediate local urticarial and inflammatory reaction, and nine days later after the injection, alternating attacks of general urticaria and cardiac weakness, lasting for two days, and accompanied by vomiting, diarrhea, oliguria, albuminuria and rapid loss of strength. Although the condition seemed critical, quick recovery followed. Two weeks later, however, there developed on the side of the injection paralysis of the serratus magnus and other muscles, with rapid wasting. The phenomena of serum intoxication and anaphylactic shock seemed to coexist in this case.

Recent Advances in Science in Relation to Practical Medicine.—S. Flexner, *British Medical Journal*, November 9, 1912, collates numerous observations made regarding poliomyelitis by himself and others, and lays stress upon the part played by the nasopharyngeal mucosa as a port of entry as well as exit for the virus. He lays stress upon the fact that the virus seems to follow along nerve sheaths in most instances, but that later it can be found in the circulating blood, as shown by animal inoculation experiments. The manner in which the disease is spread has not been definitely determined, notwithstanding all the different recognized ways that have been suggested, many with plausible arguments. He calls attention to the numerous observations made upon the curative powers of hexamethylenamine in cases of experimental disease.

Poisoning by Scarlet Red.—H. H. M. Lyle, *Medical Record*, November 16, 1912, reports two cases of extensive burns treated by applications of an eight per cent. scarlet red ointment. The first case, that of a child, the ointment was applied to a fresh wound; toxic symptoms followed in a few hours. In the second case, that of a woman 50 years of age, the ointment was used on a granulating surface; toxic symptoms appeared on the sixteenth day following. The symptoms in both cases were vertigo, gastralgia, intense nausea and vomiting. Lyle concludes that scarlet red should not, therefore, be used on fresh wounds, while on large granulating wounds only a thin layer of the ointment should be applied on the edges.

THERAPEUTIC PROGRESS

Therapeutic Experience with Uzara.—Hirz, *Münchener Medizin Wochenschrift,* October 1, 1912, reports the indications for the use of uzara as follows: Diarrheas of all grades and causes. Stomach pains and intestinal colic. Dysmenorrhea, especially for its influence on labor pains. Hirz considers great therapeutical advances in the use of this remedy possible for the reason mainly that pains and colic can be controlled without paralysis of the muscles or nerves. (Uzara comes from a small shrub indigenous to the African lake districts, presumably belonging to the natural order Asclepiacea. The roots of the plant contain the active substance. Uzara is to be found as tablets, liquor or suppositories. Dose: nine tablets per day, of the liquor 30 drops every two hours for adults; for children six drops upwards.—EDITOR.)

Natural and Synthetic Salicylates.—Cary Eggleston, in the *J. A. M. A.,* December 7, 1912, gives in full his studies of the literature on The Relative Value of the Natural and the Synthetic Salicylates, his conclusions being: First. The evidence in favor of the natural salicylates rather than the artificial is extremely slight, or what amounts to the same thing, the evidence against the artificial salicylates is even less.

Second. In nearly forty years of use by physicians all over the world, the artificial salicylates have been found quite as effective as the natural and no more liable to produce unfavorable actions under similar conditions than are these vastly more expensive natural products.

Withdrawal of Opium with Pantopon.—Frankenstein reports in the *Medizinische Klinik,* October 6, 1912, Abst. *N. Y. Med. Journal,* November 23, 1912, the case of a nurse who, during a severe illness, began to take opium, and after six and one-half years was taking 15 c.c. of laudanum daily. She came to the author for relief. He began to inject pantopon as an antidote because the effect produced by it is similar to that of opium. Twice daily one c.c. of a two per cent. sterile solution of pantopon was injected and the dose gradually decreased until it became nominal. The course of treatment lasted two months, and with only a few days of listlessness the patient was able to attend to her duties.

Arsenic Therapy.—Arsenic, like iodine, modifies syphilitic manifestations promptly, but never cures the disease, said W. F. Barclay, Annual Meeting Mississippi Valley Medical Association, Chicago, October 22-24, 1912. Reported in the *Medical Record,* November 30, 1912. In the treatment of all skin lesions and diseases of the mucous and serous membranes arsenic is of great advantage and gives prompt and permanent results. Arsenic in the treatment of rheumatism is a specific when in chemical combinations which insure rapid elimination. No remedy is of more scientific interest and less understood by the profession of medicine.

Sore Throats with Complications.—Lutz, *Long Island Medical Journal,* October, 1912, reports a number of cases of sore throat complicated with otitis. The infecting organisms were of several varieties. The conditions usually responded well to surgical measures combined with vaccines. He also reports seven cases of sore throat occurring within a period of ten days in a private school. The source of infection in these cases was probably milk, as all of the pupils affected drank from the same source of supply. Nine other cases were also traced to a single source of milk supply.

Experience in the Treatment of Postoperative Meteorism by Peristaltin and Physostigmin Injections.—C. Koch, *Zentralblatt für Gynakologie,* October 5, 1912, reports the subcutaneous injection of peristaltin, an unusually good tonic for the intestinal canal after abdominal operations. Physostigmin in doses of 0.5 grm ($7\frac{1}{2}$ grains) exerted even a better effect. Peristaltin is a glucoside, readily soluble in water. It is obtained from the shell of cascara sagrada.

Hediosit.—A nutrient and sugar substitute for diabetic patients. Hediosit is obtained through the action of hydrocyanic acid on glucose, and treatment of the condensation product with baryta, to which sulphuric acid is then added and the glucoheptonic acid lactone purified by evaporation and crystallization. It is a white crystalline, odorless powder with a sweet taste, easily soluble in water and indicated as an adjunct to the dietetic treatment of diabetes.

Occurrence of Typhoid Bacilli in the Mouths of Typhoid Patients.—Purjesc and Perl (*Wiener Klinische Wochenscrift,* October 3, 1912) report their success in producing pure cultures of the typhoid bacilli from the tonsils and teeth of active typhoid sufferers in four out of seven cases. Further, during convalescence until the eighth week, cultures from the tonsils were positive in twenty per cent., and from the teeth in fifty per cent. of the cases.

Interstate Abolition of the Common Towel.—An amendment to the interstate quarantine regulations, issued December 9, 1912, by the United States Treasury Department, orders the abolition of the common towel from all railroad cars, vessels and other interstate vehicles, and from all stations. This action apparently nationalizes the hitherto local and sporadic abolition of another public nuisance.

The Albumin Reaction in Tuberculosis Sputum.—L. Guerra Coppioli and G. Mausuino, *Revista Critica di Clinica Medica,* conclude from their investigations that the chemical examination of tuberculous sputum for albumin or albumose is of no diagnostic value, either in cases in which tubercle bacilli are present in the sputum or in those in which the bacilli are absent.

Action of Pituitrin Upon Uterine Contractions during Delivery.—Malinowsky in the *Zentralblatt für Gynakologie,* October 5, 1912, expresses a belief that the use of pituitary extract in the earliest stages of the first period of the puerperium or when there is rigidity of the cervix should be given with great caution, as cases of dangerous stricture have been reported.

Melrubin.—A new remedy for the treatment of acute articular rheumatism and sciatica; an antipyretic in typhoid, pneumonia, erysipelas and tuberculosis. Dose: From 15 to 30 grains three or four times a day.

AT YOUR LEISURE

AN ENGLISHMAN'S VIEW OF WASHINGTON

From "The Virginians," by Thackeray

Ah, 'tis easy, now we are worsted, to look over the map of the great empire wrested from us, and show how we ought not to have lost it. Long Island ought to have exterminated Washington's army; he ought never to have come out of Valley Forge except as a prisoner. The south was ours after the battle of Camden, but for the inconceivable meddling of the commander-in-chief at New York, who paralyzed the exertions of the only capable British general who appeared during the war, and sent him into that miserable cul-de-sac at Yorktown, whence he could only issue defeated and a prisoner. Oh, for a week more! a day more, an hour more of darkness or light!

In reading over our American campaigns from their unhappy commencement to their inglorious end, now that we are able to see the enemy's movements and condition as well as our own, I fancy we can see how an advance, a march, might have put enemies into our power who had no means to withstand it, and changed the entire issue of the struggle. But it was ordained by heaven, and for the good, as we can now have no doubt, of both empires, that the great Western Republic should separate from us; and the gallant soldiers who fought on her side, their indomitable chief above all, had the glory of facing and overcoming, not only veterans amply provided and inured to war, but wretchedness, cold, hunger, dissensions, treason within their own camp, where all must have gone to rack but for the pure, unquenchable flame of patriotism that was forever burning in the bosom of the heroic leader.

What a constancy, what a magnanimity, what a surprising persistence against fortune! Washington before the enemy was no better nor braver than hundreds that fought with him or against him (who has not heard the repeated sneers against "Fabius" in which his factious captains were accustomed to indulge?), but Washington, the chief of a nation in arms, doing battle with distracted parties; calm in the midst of conspiracy; serene against the open foe before him and the darker enemies at his back; Washington inspiring order and spirit into troops hungry and in rags; stung by ingratitude, but betraying no anger, and ever ready to forgive; in defeat invincible, magnanimous in conquest, and never so sublime as on that day when he laid down his victorious sword and sought his noble retirement:—here, indeed, is a character to admire and revere; a life without a stain, a fame without a flaw.

AN AXIOM

Every man has in his own life follies enough—in his own mind troubles enough—in the performance of his duties deficiencies enough—in his own fortunes evils enough—without being curious about the affairs of others.

A REMINISCENCE OF PAREPA ROSA

The New York season of music was closing. Satiated with praise, Parepa Rosa drew her fur wrap around her shoulders, and, stepping from the private entrance of the Academy of Music, was about to enter her carriage, when "Please, my ladi," in low, pleading accents, arrested her attention. It was only the misshapen form of little Elfin, the Italian street-singer, with his old violin under his arm; but the face upturned in the gaslight, though pale and pinched, was as delicately cut as a cameo, while the eager, wistful light in the great brilliant eyes, the quiver of entreaty in the soft Italian voice, held her for a moment against her escort's endeavor to save her the annoyance of hearing a beggar's plea.

"Well," said the great singer, half impatient, yet full of pity.

"Would mi ladi please," in sweet broken English, and the slender brown hands of the dwarf held up a fragrant white lily, with a crystal drop in its golden heart.

"Do you mean this lovely flower for me?" A passionate gesture was her answer. Taking the flower, Parepa Rosa bent her stately head. "You heard me sing?"

"Mi ladi, I hid under the stair. 'Twas yesterday I heard the voice. Oh, mi ladi, mi ladi, I could die!" The words came brokenly from quivering lips, passionately in earnest. The loud voice of the world she had just left had never shown Parepa Rosa the power of her grand voice as she saw it now in these soft, dark eyes aflame and in the sobbing, broken words: "My ladi, oh! my ladi—I could die."

"Child," and her voice trembled, "meet me here to-morrow at five," and, holding the lily caressingly to her cheek, she stepped into her carriage and was driven away.

It was Parepa's last night. In a box near the stage sat little Elfin, like one entranced. Gradually the clear voice swelled its triumphant chords and rang amid the arches with unearthly power and sweetness. The slight frame of the boy swayed and shook, and a look so wrapt, so intense, came on his face: you knew his very heart was stilled. Then the wondrous voice thrilled softly like the faint sound of bugles in the early morn; again its sweetness stole over you like the distant chimes of vesper bells. Encore after encore followed. The curtain rolled up for the last time, and as simply as possible the manager told the audience of last night's incident, and announced that Parepa Rosa's farewell to them would be the simple ballad warbled many a bitter day through the city streets by little Elfin, the Italian musician.

Long and prolonged was the applause, and at the first pause, sweeping in with royal grace, came our queen of song. At her breast was the fragrant lily. Queen, too, by right of her beautiful, unstained womanhood, as well as by the power of her sublime voice, she stood a moment, then sang clearly and softly the ballad with its refrain of "Farewell, Sweet Land." Accompanying her came the low, sweet wail of little Elfin's violin. There was silence in that great house at the close, then a shout went up that shook the mighty pillars.

A whisper being heard that Parepa Rosa meant to educate the boy musically, the generous hearts of a few opened the gates of fortune for little Elfin. To-day he is great and famous, and they call him to play before Princes.

Parepa Rosa! God called thee in thy perfect womanhood, but thy voice lives in our hearts, and at the last great day it shall be written in shining letters on thy name: "Inasmuch as ye did it unto the least of these, ye did it unto Me."

A SUSPICIOUS CHARACTER

The natives of Hiramville were waiting for the mail, not that they expected any letters themselves, but just to see who if anybody got one. During the period of waiting they fell to discussing an individual who had lately built a house in their midst.

"I don't somehaow seem to trust thet feller," said Uncle Silas Weevey, filling his corncob pipe with a mixture of shredded jute. " 'Tain't so much that I hain't got a likin' fer city folks, but he's too kind o' genial fer me. Every time I meet him walkin' on the rud he's got a nice, confidin' sort o' smile onto his face and a way o' holdin' aout his hand t' be shook thet reminds me of a feller I met oncet daown to Bosting thet sold me a bunch o' greenbacks fer $5, an' every dashed-bing one of 'em was thet bad I couldn't pass none of 'em. I hain't had no confidence in genial city fellers sence."

"Same here, Si," said Jabez Hawkins, the poundmaster. "I don't want to have no dealin's with him nuther. Why, thet feller come t' me th' other day and offered to paint my haouse 'n barns free fer nothin' so's when he looked aout o' the front winders o' his haouse it'd make a pleasanter outlook; an', by jings, when I ast him what he wanted to advertise onto 'em he laffed an' said, 'Nuthin' at all.' Ef he'd wanted to paint Use Slather's soap or Bildad's old-fashi'ned mapill juice or Aunt Maria's rat grits or suthin' o' thet sort I could ha' seed some sense into it, but fur ez I could make aout all he wanted was a good excuse fer lookin' aout o' his winders inter mine, so I told him I guessed things was good enough fer me ez they wuz."

"Ye're dead right, Jabe," put in Hi Webster, the gěneral store keeper. "There's suthin' almighty queer abaout thet feller. I had an experience with him on'y yesterday. He come inter my store, an' after pickin' out thutty dollars' wuth o' groc'ries an' orderin' two lawn mowers and a wash biler sent daown to his haouse he pulled aout a wad o' money an' wanted to pay cash for 'em. O' course I let him—they wa'n't nutthin' else to do—but I made up my mind then and thar 'at he wa'net a desirable customer. He showed he hadn't no overwhelmin' belief in his own credit, and I tell ye, boys, when a feller can't trust hisself he ain't got no right t' ask nobuddy else t' trust him!"

MISCELLANY

ADVANCES IN METHODS OF DIAGNOSIS

The enormous importance of diagnosis is of course fully recognized by the well trained physician, and it is in this direction that there has been such vast progress in recent years. This, however, is a good example of the simplification of medical methods. In former times the doctor was forced to depend very largely indeed on the experience gained during his apprenticeship for his diagnoses. Now, while experience must always be of great importance, the methods of modern medicine have in many ways reduced the possibilities of diagnosis to a systematic science. It is hard to realize that in such an important observation as that of temperature the use of the thermometer is comparatively recent. But since its introduction a great number of apparatus have been developed for the purpose of making diagnoses, such as instruments for measuring blood pressure, X-ray machines, numerous ingenious devices for illuminating parts of the body difficult of access, methods of blood analysis, etc. In addition to these there is the rapid development of bacteriology with the use of methods of identification, and the application of certain reagents to the patients by which characteristic reactions are obtained.

On account of this development in methods of diagnosis there is much which the medical student must learn; but on the other hand the making of successful diagnoses is enormously simplified.

With improved methods of diagnosis there must follow the recognition of new diseases. This does not mean that the diseases did not exist before, but simply that they were not recognized as such. Analogies are found in other branches of science.

Cavendish in his classical experiments on the composition of the air caused the combination of nitrogen and oxygen by means of an electric spark. All the nitrogen can in this manner be caused to combine with oxygen. With improved methods of manipulation Ramsey found that when oxygen and nitrogen were caused to combine in this manner, the nitrogen being obtained from the air, there was a residue which was found to be a new gas, now known as argon.

Becquerel discovered a new form of radiation, and in a search for its origin the Curies discovered radium. Hundreds of examples of the discovery of new elements, compounds and physical phenomena might be given, and so there need be no surprise at the discovery of a new disease.

THE DOCTOR AND DEATH

I have had the good fortune, says Kipling, to meet a number of trained men who are always in action, always under fire against death. Of course, it is a little unfortunate that Death, as the senior practitioner, is bound to win in the long run, but we noncombatants, we patients, console ourselves with the idea that it will be your business to make the best terms you can with Death on our behalf; to see how his attacks can be longest delayed or diverted, and when he insists on driving the attack home, to see that he does it according to the rules of civilized warfare. Every sane human being is agreed that this long-drawn fight for time that we call life is one of the most important things in the world. It follows, therefore, that you, who control and oversee this fight, and who will reinforce it, must be amongst the most important people in the world.

You have been exposed, you always will be exposed, to the attacks of those persons who consider their own undisciplined emotions more important than the world's most bitter agonies, the people who would limit, and cripple, and hamper research because they fear research may be accompanied by a little pain and suffering. You will find that such people have been with you, or rather, against you, from the very beginning, ever since, I should say, the earliest Egyptians erected images in honor of cats—and dogs—on the banks of the Nile. Yet your work goes on, and will go on.

SEX AND SMELL

What the connection between sex and smell is we do not know (*Medical Press and Circular,* November 20, 1912). The genital caproic secretions are coupled with cheese, an article of diet taboo to the adolescent in France on the plea that it gives one ideas. Koblauch and Roeder, in Germany, have removed the olfactory organs in immature female animals. When the severity of the operation did not disturb the course of the experiment it was found that turbinate loss arrested in a marked degree the development of ovaries, uterus and vagina, especially the horns of the uterus. Sexual desire was also diminished. These are additions to well known facts which must still wait for the mechanism of the relation to be established. Work on this class of observations may establish some very interesting details of our racial history.

PHYSICIANS TRAVEL STUDY TOUR

The visit by a party of German physicians to the recent International Congress on Hygiene and Demography has proven that a well managed Travel Study party of physicians can make a trip through a foreign country in a far more pleasant and profitable manner, and at less expense, than can be done by traveling alone. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. For those unable to speak the languages of the countries on the Continent, this disadvantage is reduced to a minimum and the benefits of the trip correspondingly increased by traveling with such a party.

The coming International Medical Congress, London, August 6-12, 1913, gives a splendid opportunity for organizing an American tour of this sort, and plans are now ready for a Physicians Travel Study Tour, leaving New York July 3d for the most important capitals and health resorts on the European Continent: Paris, Munich, Carlsbad-Marienbad, Dresden, Berlin, Nauheim, Wiesbaden, Cologne, Brussels, The Hague, Amsterdam, etc., ending with the week of the Congress in London.

Physicians interested in such a trip should write for further and more detailed information to Richard Kordes, M.D., 236 East 60th Street, New York City.

AN HISTORICAL MEDICAL EXHIBITION IN LONDON

For the first time in twenty-one years the International Medical Congress will meet in London in the summer of 1913, and in this connection an exhibition of rare and curious objects relating to medicine, chemistry, pharmacy and the allied sciences is being organized by Mr. Henry S. Wellcome. The response to the appeal for loans has been most successful, with the result that probably one of the most interesting collections of historical medical objects ever gathered together will be on exhibition during the meeting of the Congress.

Among other interesting sections is one including the medical deities of savage, barbaric and other primitive peoples. Through the kindness of friends, specimens of these have been forwarded from all parts of the globe, but there are still many gaps to be filled, and those who possess such objects and would be willing to loan them, should communicate with the secretary of the exhibition, whose address is given below.

Amulets, talismans and charms connected with the art of healing will also form another prominent feature, and any loans of this description would be welcomed.

In the section of surgery, an endeavor will be made to trace the evolution and development of the chief instruments in use at the present day, and it is desired to accumulate specimens of instruments used in every part of the world by both savage and civilized peoples.

In pharmacy and in botany special exhibits are projected, which will include models of ancient pharmacies, laboratories and curious relics of the practice of alchemy in early times. Specimens of ancient and unusual materia medica from all parts of the world will also be exhibited.

A complete, illustrated syllabus will be forwarded to any one interested on application to the Secretary, 54a, Wigmore Street, London, W., England.

THE BORN CRIMINAL

Human beings with low brows, prognathous chins, flap ears, apelike arms, and wrinkled faces, destined from all eternity to be criminals, are figments of the so called "criminologist's" fancy. Secretary Orlando F. Lewis, of the State Prison Association, of New York, writes the *Times* that the "murder car" band arrested in the Rosenthal case are not an ill-looking lot.

Lombroso's "stigmata of crime" are of little value in the study of criminals. Since the founding of the Italian school of criminal philosophy, which postulated the existence of human monsters who must be "instinctive" criminals, thousands of pages of printed drivel have been written to confirm the fatalistic doctrine.

The scientific man of to-day believes that there is very little in the theory of hereditary criminality, or, in fact, in anything hereditary that dominates the life of individuals to their undoing. There are degenerates and epileptics, feeble-minded and insane persons, whose misfortunes may be ascribed to ancestry. They are relatively few. Men are largely creatures of environment and training, and these may be bettered at will.

UP TO DATE

The doctor who prescribes drugs not in the common list, as commonly known, will gain a reputation for knowledge and progressiveness. But he who neglects to write a prescription for sodium chloride, C.P., and aqua destillata, when he desires to use a solution of salt, but merely asks for some salt and water from the kitchen, is apt to be branded with contempt and called an old fogy, away behind the times, who has not gone beyond the age of simples.—*Medical Era,* January, 1912.

BOOK REVIEWS

A Practical Medical Dictionary. By THOMAS LATHROP STEDMAN, A.M., M.D., Editor of *Twentieth Century Practice of Medicine*, Editor of the *Medical Record*. Second Revised Edition. Illustrated. New York: William Wood and Company, 1912.

It must be gratifying to the distinguished author of this voluminous work to find it necessary to within a year issue a revised second edition; gratifying as well to the publishers and to those needing such a work. Not only medical men, but Dentists, Veterinarians, Chemists, those interested in Botanical, Electrical and allied sciences will find here such a reference book as will gladden their hearts.

The language of medical and other sciences grows so that we have found it rather trying to keep pace with it; not only new words of necessity appear, but the spellings and meanings change. To have, therefore, a work at one's elbow that is full and correct is a delight to all writers and editors.

Of the spellings we note with much pleasure that the diphthongs have been dropped, and that the Greek *K* is represented by the English *c*. That the spellings or terminations of medicinal terms are as in the United States Pharmacopœia, *ine* for the alkaloids, *in* for the glucosides. The final *e* in words such as chlorine are still used, all of which will meet with the approval of, especially, our medical writers. The illustrations are illuminative as well as numerous, while the type, paper and binding are a credit to the publishers. Finally, any improvement in the text or general make up of this handsome book will be, for some time at least, difficult of accomplishment by an author or publisher. It might not be out of place for us to suggest that a student's smaller edition would be well worth the efforts of Dr. Stedman and his publishers, Messrs. William Wood and Company.

Pathfinders in Medicine. By VICTOR ROBINSON, with a letter from Ernst Haeckel, and an introduction by Abraham Jacobi. New York: Medical Review of Reviews, 1912.

We scarcely know how to approach a review of this work—whether as eulogist, critic or to just write of our sensations in the reading. It is not so great an effort to make research and calmly set down the facts as found with thought to mere facts alone. There is no life in mechanics. Science is cold and exacting. To reach the nether pole is a question of resources, endurance and perseverance. The hero is in the light of history more often than otherwise, a misguided zealot, or worse, a cruel butcher. But to create, to build, to paint that which will delight man, that which will inspire, enrich, is of real value. Poetry is a phantasy of the brain. The more gifted the writer the more enduring his work. It is true that the greatest poetic effusions are not necessarily lyric. Mr. Robinson has given us in the "Pathfinders of Medicine" poetry of another sort. He has taken available facts and clothed them with beautiful raiments, albeit, there are occasional rents which disclose soiled undergarments, but we can forgive this, for the effect of his artistry is beautiful to contemplate and a delight to approach. There was that in some of his models that was repellent, but he has glossed these over with rare pigments and given us rare portraits. His Servetus is a fine print, but to our mind his Darwin is his best work.

It would be impossible to detail these several essays: Galen, Paracelsus, Versalius, Paré, Hunter, Jenner, Semmelweis, or even Galen, Servetus or Darwin. We may, however, be allowed to quote from the essay on Darwin:

"A score and seven years ago, the body of Darwin—borne by two dukes, two sirs and a belted earl—was laid at rest in Westminster Abbey, next the ashes of the mighty Newton. A fitting honor, and yet a vain one, for when the altars and architraves of the great Abbey rock and reel, when its lighted and vaulted ambulatory becomes the abode of the bats, when its murals and mosaics are destroyed, when its twisted columns and its spiral bands totter in despair, when its effigies of angels and its monuments of royalties are obliterated, when the cloisters and the chapter-houses tumble in a heap, when its pointed towers and projecting transepts embrace the lowly dust the illustrious and immortal name of Charles Darwin will still be a living force.

Only when the race of man ceases to search for truth, can the luster of that name grow dim. . . . Tall men from the ends of the earth have garlanded him with wreaths that do not fade, and laurels that never die." Here is but a glimpse of the pleasure in store for those who will read this book.

We hope that Mr. Robinson may be with us for many years and that he will not grow aweary but continue the work so admirably begun in the by-ways of particularly the history of medicine and the collateral sciences.

Building a Profitable Practice. Being a Text Book on Medical Economics. By THOMAS F. REILLY, M.S., M.D., Professor of Applied Therapeutics, Medical Department, Fordham University. New York City, Philadelphia and London: J. B. Lippincott Company, 1912.

The author of this book very wisely states in the beginning of his preface: "At the commencement of a medical career many great problems face the beginner." All beginners should rejoice that one so well qualified has taken the time from a very busy life to write a book that is so instructive and will be so helpful to him. There is nothing that he should know from the economical side of the trying profession of medicine that is not to be found in this book. It would be impossible even measurably to cover in a review the many subjects—forty chapters—in this work. But Chapter VI, The Office, as well as that on Medical Finance, the one on Drugs and the Pharmacist, and Dont's in Practice appeal to us as the most important. Every one of the three hundred pages, however, will prove of great interest, and better, help. The illustrations, full page, are excellent.

Skin Grafting for Surgeons and General Practitioners. By LEONARD FREEMAN, B.S., M.A., M.D., Professor of Surgery in the Medical Department of the University of Colorado, Surgeon to St. Joseph's Hospital, the National Jewish Hospital, and the City Hospital, Denver, Colorado. With 24 illustrations. St. Louis: C. V. Mosby Company, 1912.

This will prove a timely work; is one we think up to date, giving description for the several recognized and approved methods of skin grafting. Chapter XI, on Histology and Pathology, will be found very interesting. As a special treatise on the subject, handsomely printed and bound with numerous illustrations, this work is to be commended.

Annual Report of Recent Advances in Pharmaceutical Chemistry and Therapeutics. By E. MERCK. Vol. XXV. Darmstadt: E. Merck Chemical Works, 1912.

This is the familiar Merck's Annual Report, a most useful volume of some 500 pages. The first thirty pages are devoted to an exhaustive study of the Glycerophosphates, followed with various clinical and therapeutic studies on Digitalis Glucosides and Allied Drugs; Preparations and Drugs, covering a wide range of study; in fact, all that is new in remedial agents. Not the least valuable part is an Index of Diseases with Symptoms and Indications for Treatment, together with an Index of Authors and a full Bibliographical Index.

PAMPHLETS AND REPRINT

Organization, Powers and Duties of Health Authorities. An Analysis of the Laws and Regulations Relating Thereto in force in the United States. By J. W. KERR, Asst. Surgeon General, and A. A. MOLL, A.B., Treasury Department, United States Public Health Service. Government Printing Office, Washington, D. C.

Collected Studies on Typhus, Hygienic Laboratory. Bulletin No. 86. Government Printing Office, Washington, 1912.

Open Air Schools for the Prevention and Cure of Tuberculosis Among Children. By B. S. WARREN, Passed Assistant Surgeon. Public Health Bulletin No 58. Government Printing Office, Washington, D. C.

Common Drinking Cups and Roller Towels. An Analysis of the Laws and Regulations Relating Thereto in Force in the United States. By J. W. KERR, Asst. Surgeon General, United States Public Health Service, and A. A. MOLL, A.B. Public Health Bulletin No. 57. Government Printing Office, Washington, 1912.

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ORIGINAL ARTICLES

THE SURGICAL TREATMENT OF EPIDIDYMITIS

By Leon T. Ashcraft, A.M., M.D.,

Philadelphia, Pa.

This article may be regarded as complementary to a former one appearing in The American Practitioner, June, 1912.

It would be impossible to give the history of every case operated without referring to the records of several hospitals, as well as those treated in private practice. Epididymitis, as we know, in its several types is very frequently met with. My results following surgical treatment have been uniformly gratifying. It is not hard to understand this and also to recognize why medical treatment is so ineffectual. All that is necessary is to recall that the urethral discharge reaches the epididymis from the posterior urethra directly through the vas deferens. In very rare instances it arises from the blood and lymphatics. As a result, the urethral discharge becomes either markedly diminished or entirely suppressed and is mostly confined to the tail of the epididymis. Upon delivering the testicle from the tunica vaginalis and examining the epididymis, one sees an intense engorgement of this body, particularly marked at its tail. The vas is also swollen. In many instances the tunica vaginalis is firmly adherent to the lower portion of the epididymis and often an appreciable hydrocele exists. Until one has punctured the epididymis, thus liberating the pus, he can scarcely appreciate that so many miliary abscesses exist. Smears taken from this pus show gonococci. Unless the pus is liberated from the epididymis, the excretory duct becomes blocked; herein can be seen the imperative necessity for surgical treatment. There must be a free channel to convey the semen to its storehouse. To be sure, medicine and mechanical treatment will alleviate epididymitis, but they never effect a cure.

Should bilateral epididymitis occur simultaneously (this is very rare, although a case is cited in this article), or should a subsequent attack of urethritis be followed by epididymitis on the unaffected side, sterility is almost sure to follow. Martin's operation* epididymo vasostomy must here be tried.

Another reason for surgical treatment is the orchitis which sometimes follows epididymitis. Especially is this the case in the traumatic variety, the injury often terminating in suppuration. I recall such a case following prostatectomy.

CASE 1.—E. H., age 68, retired. Patient of Dr. Claude Thomas, of Woodstown, N. J. Epididymitis; testicle and cord removed for scrotal abscess. Recovery.

History: Six months previously I removed the prostate by my operation through the perineal route. He made an uneventful recovery, leaving the hospital in three weeks. Had been leading a catheter life for several years prior to operation, and had suffered from several attacks of epididymitis. One month after prostatectomy he stumbled and struck the testicle against a chair. A moderate amount of pain and swelling followed. This increased when he consulted me two weeks later. I decided to operate. Incision showed destruction of nearly all of the epididymis and part of the testicle. I made a castration and submitted the specimen to my pathologist. The report was "no evidence of malignancy or tuberculosis." The patient now enjoys perfect health.

It, too, must not be forgotten that frequently we have not only epididymitis present, but also an involvment of the seminal vesicle of the side affected as well. This can be readily understood when we recall that the ejaculatory duct is in direct communication with the duct from the seminal vesicle, and the reason that seminal vesiculitis is not more frequently diagnosed when epididymitis exists is because the examining finger is not employed to detect it. This point in diagnosis I always emphasize in my clinical lectures. In recent operations I have been combining vasostomy with epididymostomy, thus draining the seminal vesicle, as well as preventing reinfection of the epididymis. Again, it must be remembered that very often epididymitis is associated with follicular or parenchymatous prostatitis or even pelvic abscess. This is explained by recalling the topography.

CASE 2.—A. W., age 26, clerk, patient of Dr. H. Schultz, of Philadelphia. Diagnosis—prostatic abscess—perineal section; Epididymitis one week later—epididymostomy—cure.

History: Patient had been suffering from prostatic abscess of gonorrheal origin for two days. Was removed to hospital, perineal section made, and prostate thoroughly drained. One week later developed acute epididymitis on right side. I immediately operated, puncturing the epididymis in several places, relieving the tension and liberating the pus. He made an uneventful recovery, leaving the hospital one month later. Following the second operation, the discharge diminished, temperature and pulse became normal. He was referred to his physician for further treatment.

CASE 3.—G. W., age 24, patient of Dr. Yocum, of Pottstown. Prostatic abscess, bilateral epididymitis, inflammation of right seminal vesicle. Perineal section, bilateral epididymostomy and vasostomy.

History: While preparing this article, I was called to Pottstown to see this

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**Therapeutic Gazette,* December, 1909.

case. He had suffered from an attack of gonorrheal urethritis lasting three months. For three days had been in bed with bilateral epididymitis. An interesting phase of this case was that there was marked tenderness and rigidity of the abdomen at McBurney's point. Rectal examination revealed marked sensitiveness of right seminal vesicle and entire prostate. He was septic having had several chills during the previous forty eight hours. I made a perineal section, draining the prostatic abscess and vesicles bilateral epididymotomy and vasostomy, also. Three days after temperature and pulse were normal. A profuse urethral discharge persisted for one week. He is still under treatment.

The technic which I employ for acute gonorrheal epididymitis is as follows: The patient is anesthetized, after which the scrotum is shaven. A 2 per cent. alcoholic solution of iodine is then applied and the scrotum incised, thus exposing the tunica vaginalis. The second incision is then made into the tunica. This is enlarged and the testicle delivered and inspected, the epididymis is swollen, especially at the tail it should be punctured in several places. Unless these punctures are made sufficiently deep pus will not exude. Rarely I make a free incision into the epididymis. Until one has performed this operation it is impossible to realize the number of miliary abscesses that exist. Subsequent to puncturing, I make gentle pressure upon the epididymis with the thumb and forefinger. This causes an exudation of pus. The testicle is then returned into the tunica and several stitches taken, leaving a small opening in its lower portion. In this I insert a small strip of gauze, which is removed daily. It is remarkable how quickly constitutional symptoms disappear. In a few days the patient is very comfortable. The discharge in many instances ceases, but in some it is as profuse as before the attack. Sometimes the scrotum attains a considerable size following the operation, but singularly it is not at all painful. Nodules, which are so clearly defined for years following nonoperative treatment, are rarely met with, and are not palpable at all two months following operation. I always examine the semen, expressing it from the previously diseased side several months following operation, and in nearly every case active spermatozoa have been seen.

CASE 4.—J. X., age 24, wards West Philadelphia Hospital. Diagnosis—gonorrheal epididymitis of two days' duration, following an unusually severe attack of gonorrheal urethritis. Epididymostomy—cure.

History: The patient was seen at the height of an attack presenting an enormous swelling of the epididymis. Temperature 103°, pulse 120, suffering agonizing pain. Was operated on before my clinic class. I freely punctured the epididymis, liberating the pus. The swelling decreased, pain disappeared, both temperature and pulse became normal, the discharge disappeared, patient leaving the hospital ten days later. One month later the urine had cleared, and the expressed contents of seminal vesicles and prostate showed normal conditions.

When combining this operation with vasostomy, after draining the epididymis and returning the testicle within the tunica, I select a point on the anterior surface of the scrotum near the entrance of the vas through the external abdominal ring, I expose the vas, bring it to the surface and make a small longitudinal incision in it. I then carry my suture through the under surface of the dartos and allow about two inches of the suture material to project beyond the point of puncture. The needle is then carried into the vas on one side of the longitudinal incision, the suture material being then brought over and united to the free end which has been left. A similar procedure is then done on the opposite side. This not only allows drainage of the vas, but permits of bringing it to the surface for daily treatment if such be deemed advisable. I say, if advisable, because in acute seminal vesiculitis I am content with drainage. It is sometimes difficult to keep the vas open; here it is necessary to dilate the lumen with a small silver wire. The lower wound heals in about two weeks, the upper one ,may be kept open for several weeks, but will heal more quickly unless means are taken to prevent it.

CASE 5.—A. M., age 42, patient of Dr. J. F. Rowland, of Philadelphia. Diagnosis—acute unilateral epididymitis and vesiculitis involving the right side. Epididymostomy and vasostomy—cure.

History: Patient had an attack of gonorrheal urethritis, rapidly becoming posterior. Ten days afterward developed pain in the right vas deferens quickly followed by a swelling of the epididymis, also complained of abdominal pain on the right side and pain referred to the perineum. Temperature 103°, pulse 110. The examining finger detected a marked swelling of the right seminal vesicle. Operation: Delivery of the testis, multiply punctures of epididymis, exposure of the vas, allowing drainage of the seminal vesicle. He made an uneventful recovery, all the symptoms rapidly disappearing, and left the hospital two weeks following operation. Six weeks later he voided clear urine. The expressed contents of each seminal vesicle showed active spermatozoa and freedom from infecting organisms.

Occasionally epididymitis precedes or follows prostatic or vesicular abscess. Under such circumstances, I have obtained the best results from perineal section combined with epididymostomy and vasostomy, thus draining the prostate, bladder, seminal vesicles and epididymis at the same time.

I formerly practiced vasectomy for relapsing gonorrheal epididymitis. Now I usually drain the vas and direct appropriate treatment to the posterior urethra and seminal vesicle, if the latter is involved. As we know, this relieves the pressure upon the epididymis and allows medication of the seminal vesicles.

CASE 6.—S. T., age 38, cattle ranchman, patient of Dr. E. S. Africa, of Warren, Pa. Diagnosis—recurrent epididymitis and vesiculitis, urethral stricture. Operation—vasostomy, internal urethrotomy. Result—cure.

History: Chronic urethritis and recurrent left epididymitis had existed for five years. Engorged left seminal vesicle. Examination of expressed secretion and centrifuged urine showed extra cellular diplococci. Operation—internal urethrotomy and vasostomy. The seminal vesicle was treated every other day through the incision in the vas with 25 per cent. solution of protargol, the wound in the scrotum being kept open for three weeks. He remained under my charge for six weeks. At this time the urine was free from shreds and bacteria of any kind. Spermatozoa were found in the expressed secretion.

Epididymitis may be seen in the second stage of syphilis. I have never been called upon to resort to surgery for its relief. I can, however, recall one or two cases necessitating castration as a result of gummatous degeneration.

As stated one rarely sees acute bilateral gonorrheal epididymitis. More commonly, an involvement of the sound epididymis may occur within a few days after the cessation of epididymitis on the other side. When sterility results from bilateral epididymitis, in order to restore fertility, Martin's operation*, epididymovasostomy must be resorted to.

Tubercular epididymitis is often seen, and unfortunately too often mistaken for the relapsing gonorrheal type. One of its contributing causes is a lowered power of resistance, due to repeated attacks of gonorrheal epididymitis. The proper treatment for this variety is epididymectomy, and if the testicles be involved, castration. Of course, if the disease is bilateral, we must make surgery subservient to the mental effect which might follow double castration, and be content with bilateral epididymectomy. My reason for advising the early removal of the epididymis is because it may then be the only part of the genital system involved, and its removal limits the progress of the disease. If the epididymis is not removed, then there is danger of infecting not only the testicle, but the other epididymis as well.

It is not within the scope of this paper to discuss the supportive treatment of tubercular epididymitis. Diet, hygiene, and treatment by drugs and vaccines all have their place and may be used before or subsequent to operation as indicated.

The technic which I employ is as follows: The testicle and epididymis are delivered into the operating field through the usual incision. The entire epididymis and a fair portion of the vas is removed. If the testicle is diseased, I resort to castration, otherwise the testicle is returned to its bed and the wound packed with iodoform gauze. The cut end of the vas is touched with phenol and sutured to the skin. This allows drainage from the seminal vesicle. The wound is redressed every day or two and allowed to heal by granulation. In a number of instances, where both epididymes and testes have been involved and the scrotum punctured with fistulae, I have curetted, removing the debris and then given supportive treatment.

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* *Therapeutic Gazette*, December, 1909.

I have had several cases where epididymectomy apparently stayed the progress of urogenital tuberculosis.

CASE 7.—A. R., age 23, hospital orderly. Diagnosis—unilateral tubercular epididymitis. Epididymectomy—cure.

History: He consulted me for swelling of right epididymis. No venereal history could be obtained. He had recently married. Rectal palpation failed to detect involvement of either the prostate or seminal vesicles, no urinary symptoms existed. Urinary analysis failed to show tubercle bacilli. I decided to operate because of the limitation of the disease to a single organ. A cure resulted. This was one year ago. I have recently cystoscoped him and catheterized the ureters, but have failed to find any evidence of tuberculosis.

This case is a marked contrast to the following:

CASE 8.—C. M., age 32, tailor, single; patient of the late Dr. R. W. Martin, of Philadelphia. Prostatic abscess, perineal fistula, abscess of right testis, and epididymis, abscess following the cord, necessitating orchidectomy, drainage of abdominal abscess. Death resulted six months later from acute miliary tuberculosis.

History: A prostatic abscess was diagnosed. It was drained through a median perineal incision. Convalescence was quite tedious, the patient leaving the hospital one month later, apparently much benefited. The perineal wound failed to heal. About six weeks later marked dysuria occurred. The perineal wound gaped and a swelling appeared at the right side of the scrotum, involving the testis, epididymis and cord. I removed the testis and as much of the cord as was possible; convalescence was slow. The perineal fistula refused to heal. About two months subsequently he developed an abdominal abscess. This I opened and drained. He died six months later from acute miliary tuberculosis.

DIFFUSE PAPILLOMATOUS CARCINOMA OF THE BLADDER. A CASE REPORT

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Although the reporting of rare cases is not so valuable, from the standpoint of the general practitioner, as a record of the treatment of more commonly met conditions would be, it still holds a place in general medical literature, both on account of the interest which such reports arouse, and, more particularly as a reminder that in some seemingly simple cases an unusual and very serious process may be going on which will tax all the physician's diagnostic resources to properly classify. An early diagnosis in such cases affords the only hope of saving the patient's life by the institution of surgical or other indicative procedures, and redounds greatly to the credit of the diagnostician.

The patient whose case is now to be reported first came under the writer's observation on May 9, 1904, complaining of a burning sensation in the region of the kidneys and a feeling as though these organs were "crawling." He had suffered considerably with pain in the lumbar region.

His family history showed nothing bearing upon the case. Personal History: Age, 32 years. Nativity, United States. Occupation, painter (had formerly been a bartender for several years). Status, married, two children.

He was a man of medium height and stocky build, blonde, of average mentality. He used tobacco moderately and had been a rather heavy drinker, although he denied more than a moderate use of alcohol at the time.

He stated that he had had "brain fever" at the age of eleven years, and that about twelve years ago he had had an attack of burning on urination with cloudiness of the urine. Otherwise he had been well all his life.

The physical examination was not so thorough as it should have been. The attack, twelve years before, was interpreted as gonorrhea, and an incomplete examination of the urine showed:

Color, pale straw.
Odor, somewhat sweetish.
Sediment, slight, urine cloudy and slightly viscid.
Sp. grav., 1.020.
Albumin, a trace.
Sugar, none.

The treatment given was that which would ordinarily be prescribed for a case of renal and vesical irritability in an alcoholic and exgonorrheic. It relieved the symptoms, and in a week or two he considered himself well.

He was not seen again until December 28, 1907, when he returned, complaining much as before. His urine showed a sp. grav. of 1.012 and still contained a trace of albumin. The same line of treatment was instituted as on the former occasion, with the same result—symptomatic relief within two weeks.

After the lapse of nearly two years, on August 11, 1909, I was called to see him again, in consultation with my colleague, Dr. R——. The man was scarcely recognizable—emaciated, pale, the mere shadow of his former robust self, and with the sunken eye and drawn, anxious look of the mortally ill.

The history elicited at this time showed that in May, 1909, he was in apparently normal condition, feeling perfectly well, and weighing about 150 pounds.

The trouble began with pain over the bladder, shortly after which pus appeared in the urine, and about June 25th blood also appeared.

From this date until July 15th some blood was seen at every urination. On the last-named date there was a rather free vesical hemorrhage, after which no more blood appeared. During June he began to notice a falling off in weight, and about July 20th, when he took to his bed, he weighed 132 pounds (it was much less than that at the time of the consultation).

Status Praesens (August 11, 1909): Suffers greatly with pain in the rectum, which radiates to the perineum and bladder and breaks his rest at night. Urination is excessively frequent (every 15 minutes three days ago; now every 30 minutes). The tongue is very red and sore; appetite fair; bowels constipated. He is very weak, and feels feverish every afternoon. Temperature 100° F.; pulse 104.

Physical examination by percussion and auscultation, negative.

Uranalysis:

Quantity in 24 hours, 200 c.c.
Color, pale straw, turbid.
Odor, saline, flesh-like.
Sediment, heavy, slimy, ropy pus, looking like sputum; turbidity above this.
Sp. grav., 1.008.
Total solids, 37.28 gm.
Acid Index (Harrower), 18.
Acid Units, 36,000.
Indican, marked (double plus).
Urea, 0.4 %; total urea, 8.0 gm.
Albumin, present. Total, 2.2 gm.
Sugar, none.

The urinary sediment, when submitted to the bacteriologist of the Indiana State Board of Health, on August 12th, was found to contain no tubercle bacilli.

A clinical diagnosis of chronic pyelonephritis was made.

The further treatment of the case rested with my colleague, and was principally directed to making the patient as comfortable as possible. He died on September 18, 1909.

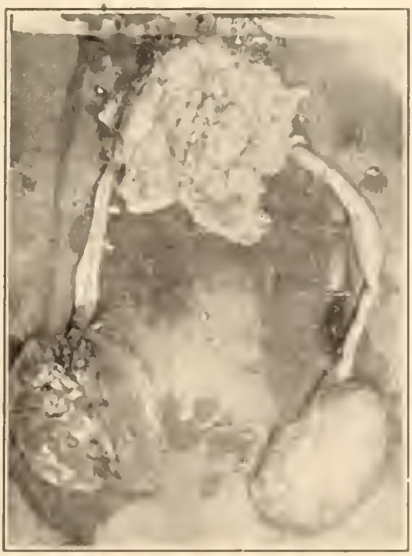
An autopsy was performed on September 19th by Dr. R. and the writer. The thorax was not opened. An examination of the organs in the belly revealed no gross lesions of any but the urinary apparatus, which was removed entire.

Kidneys: Greatly enlarged—more than double the normal size; capsules adherent. On section the parenchyma was rather soft and appeared a dark, livid red. Every cut uriniferous tubule exuded pus on pressure. The renal pelves and lower ends of the collecting tubules were dilated and filled with ropy pus.

Ureters: Enormously dilated—measuring from 1 to 1½ inches in diameter—and filled with ropy pus.

Bladder: Enlarged to about one half more than normal size. Walls greatly thickened and so friable that a finger would go through them at any point with the greatest ease. On section, the cavity was found to be almost obliterated by a soft, papillomatous growth, which had reduced the capacity of the viscus to 3 or 4 ounces. This growth covered the entire vesical wall, which it infiltrated completely; it was very soft and friable, pinkish gray in color, and its folds and processes were bathed in slimy pus.

Urethra: Not examined. (A photograph of the organs, with one kidney and the bladder laid open, and showing the dilated ureters, is attached.)



Several specimens of the growth in the bladder were submitted to the pathologist of the Indiana State Board of Health, and were pronounced carcinomatous.

Little comment upon this case is necessary. It is possible that a more thorough examination when he first presented himself for treatment might have rendered possible life-saving surgical procedures—and it might not have done so. The clinical diagnosis, so far as it went, was vindicated by the postmortem findings, but the presence of fresh blood in the urine on various occasions should have led to a more accurate antemortem estimate of the conditions present.

The point was emphasized that no case can be intelligently treated until the physician has exhausted his diagnostic resources in an effort to ascertain exactly what the underlying pathological processes are.

DIAGNOSTIC HINTS IN SENILE CASES*

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Lack of success in dealing with senile cases is due more often to faulty diagnosis and consequent improper treatment than to senile cachexia, with consequent exhaustion and physiological death. The manifestations of the normal senile changes are in earlier life symptoms of pathological conditions, and they may be symptoms of disease in the aged. It is often difficult to determine if a symptom or sign presenting itself at the onset of a disease is due to the normal change of age or is a symptom of the disease. A general rule in these cases is to consider a symptom which has preceded an illness for a long period, slowly increasing, and not markedly increased during the illness, as a manifestation of the normal senile change or a chronic condition having no bearing upon the present disease. The most important of these symptoms are dyspnea, due to atrophic emphysema; cough and expectoration, due to chronic bronchitis; vertigo, due to cerebral arteriosclerosis; constipation, due to intestinal atony; retention of urine, due to atony of the bladder and hypertrophy of the prostate; senile tremor, due probably to senile degeneration of the cord, and senile cachexia. Under senile cachexia are included physical debility, slow emaciation, mental dulness, weakened impulses and response to impulses, including reflexes, and a sallowness not due to deficiency of hemoglobin. The winter cough is pathological, but all the others are physiological, but may also occur as symptoms of disease in the aged. It is, therefore, of the utmost importance to know how long a symptom existed. Was the patient short of breath before his illness, and did he get out of breath under slight exertion? If he did, we can disregard the dyspnea unless severe, and we can disregard the signs of senile emphysema, which causes it. If it is winter, and he has in addition to senile emphysema a chronic winter cough, we may hear dry and moist râles all over the chest, and these may mask the fine râles of capillary bronchitis, while the hyperresonance of the emphysema will completely mask the percussion dulness of pneumonia. This is one reason for the many deaths from pneumonia in old age. The symptoms and signs are masked by the symptoms and signs of other conditions, and the disease is often not recognized until pulmonary edema has set in. A rapid panting respiration is pathognomonic of pneumonia, but the respiration is not panting if there is senile emphysema. It is, however, rapid and shallow. We must remember that acute lobar pneumonia, with its distinctive mode of invasion and classical stages, is very rare in the aged. The senile pneumonia is usually called bronchopneumonia, but in most cases the bronchial symptoms are incidental and not essential, being caused by a chronic bronchitis, which may not have extended beyond the larger tubes. This senile pneumonia does not give the acute symptoms of the infectious pneumonia. There is little fever, and no chills to mark its advent; there is little pain, but there is a feeling of oppression in the chest; there is cough, but in most cases we get a history of chronic bronchitis, and there is rarely a bloodstreaked expectoration. In the presence of the senile emphysema and chronic bronchitis, the physical signs are deceptive, as they attract attention to the chronic conditions present. If, however, there is rapid prostration and rapid breathing, there is a probable pneumonia. Even in the presence of a chronic bronchitis we will get an occasional dry cough, and the patient will strike his chest as if trying to loosen some tenacious mucus. If there is in addition a muttering delirium, the family or nurse telling us the patient is talking in his sleep, our diagnosis of senile pneumonia is fairly certain.

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*Extracts from a course of lectures on Geriatrics delivered at the College of Physicians and Surgeons, Boston, November, 1912.

With advancing age the body temperature diminishes; it rises slowly, and only some profound disturbance in the heat production and regulation centers will produce fever. A rise of three degrees above the senile norm, say a temperature of 101°, is serious, while 103° denotes a grave condition. As there may be a difference of two degrees or more between the mouth and rectum, and the mouth temperature may vary two degrees at different times, the temperature should always be taken in the rectum. Infectious diseases are infrequent, and the typical temperature curves of typhoid and malaria are rare. The exanthemata are very rare, and they do not present the clearly defined eruptions of earlier life. In some cases the prevalence of an epidemic will determine the diagnosis. A fairly accurate estimate of the normal blood pressure in advanced life is to add the age to 100 mm. for the respective age. Thus a blood pressure of 160 mm. will be normal at the age of 60, and 180 at the age of 80. A low blood pressure in old age generally indicates decompensation.

The aged do not vomit readily. When vomiting occurs, it is due to some intense irritation of the gastric mucous membrane, either through drugs, improper food, or cancer. Reflex vomiting is rare. Diarrhea is almost always due to excessive food. Lientery is generally due to excessive food. If it persists, and consists of proteid food as muscle fiber, it is probably due to incomplete closure of the pylorus.

A persistent cloudy or ammoniacal urine, notwithstanding frequent urination or catheterization, points to vesical pouches in which small quantities, perhaps only a few drops, of urine are retained. If immediately after catherization the patient will lie on his back for a moment, then turn over on his abdomen, and then arise and be again catherized these small quantities which were retained in the vesical pouches will pass away and the diagnosis be thus confirmed. Albuminuria without casts points to senile contracted kidney. In this case the urine is slightly diminished in quantity and specific gravity. A single tube cast means nephritis. In chronic interstitial nephritis the quantity of urine is increased and the specific gravity below 1.010.

Many diseases that are usually painful, produce little distress when occurring in old age. The absence of pain in such cases may be due to degeneration of the sensory terminals, or to lessened ability of the senile mind to appreciate pain. Abnormal sensations, as pruritus, and abnormal actions, as twitching of muscles, tremor, paralysis, etc., may be due to unconscious mimicry, or suggestion. It is often impossible to determine this until close questioning of the patient and his friends brings out the information that the patient did not have the symptoms until he saw a person similarly afflicted.

The history as given by aged patients is not reliable. They will exaggerate or minimize former ailments, fabricate when their memory is at fault, or deny what they cannot remember. They will exaggerate present symptoms to obtain sympathy or they will deny obvious distressing conditions if they fear that an examination will cause pain. The mental attitude of the patient has an important bearing upon the previous history and also upon the subjective symptoms. After the senile climacteric the individual becomes apathetic, his mind is less able to appreciate disagreeable sensations, and it is often impossible to get a clear history either of preceding conditions or present sensations. Many acts are performed through habit, and he will not be certain if he performed the act or not. He may go to the closet upon arising, sit there for half an hour, and not know if he had stool or passed urine. This point is important, yet it is generally neglected.

The following physical signs may be normal and physiological in the aged:

Inspection: Emaciation, sallowness, dry skin, kyphosis, abasia, tremor, rigid chest walls, up and down respiratory movements, apex beat above and to the left of its position in maturity, tortuous arteries, venosity, dyspnea, a flush over the malars, slight cyanosis, contracted pupils, arcus senilis, coated tongue, apathetic expression.

Palpation: Exaggerated heart impulse, hardened arteries, nodular abdominal aorta, diminished fremitus, various visceroptoses, hypertrophied prostate.

Percussion: Atrophy of the lung, liver, spleen, and pancreas, hypertrophy of the heart, dilatation of the stomach and bladder.

Auscultation: Senile emphysema, aortic regurgitation, pleuritic friction.

Any of these conditions may exist as a pathological condition or may complicate and aggravate other diseases. The pulse is useless for diagnostic purposes, as its character may be modified by sclerosis of the radial artery. Some symptoms have a peculiar significance in the aged.

Rapid emaciation, not caused by diarrhea or starvation, points to cancer, diabetes or Grawitz' cachexia.

Dilated pupils, when not due to drugs, coma, or painful or disagreeable emotions, are due to an acute disease with fever.

Rapid cyanosis of the lips occurs in senile pneumonia or is due to drugs. *Broken sleep* may be due to frequent naps during the day or to frequent desire for urination in dilated bladder. *Chills* are rare and always point to a grave disease. *Chilliness* is frequent, and is of no importance except to show weakened circulation and metabolism. A rapid *fall in temperature* is generally due to exhaustion, and is of a grave omen, as fevers in the aged rarely end by crisis.

Vertigo in the aged does not always signify cerebral arteriosclerosis. If it is constant and gets worse during the day or after reading, it points to some ocular impairment. If it is relieved when lying down, it is due to cerebral anemia. If it persists after lying down, it is due to arteriosclerosis. Other causes for constant vertigo in the aged are syphilis, which is rare except in the tertiary stage, and neurasthenia or other nervous disease. These can readily be diagnosed. If the vertigo is intermittent, we must eliminate auditory, gastric, and nervous causes before we can say it is due to arteriosclerosis. I will mention here a few senile conditions, which are frequently mistaken for diseases.

Senile arthrosclerosis, mistaken for *chronic rheumatism*, especially when occurring in the ankles. In the senile condition the pain is relieved upon rest and aggravated upon motion. In chronic rheumatism the pain persists during rest and becomes less upon motion.

Senile tremor affects the legs late and only upon walking. In *paralysis agitans* the legs are affected early and the head late, and the tremor is seen when standing or walking.

Senile kidney is frequently mistaken for *chronic interstitial nephritis.* The differential diagnosis has been given.

Senile liver, sometimes mistaken for the atrophic stage of *cirrhosis of the liver.* There are absent the history and symptoms of cirrhosis except the diminished size of the organ.

Senile brain symptoms resemble the symptoms of *softening of the brain,* but the latter disease usually begins after an embolus or thrombus, and proceeds rapidly, while the manifestations of the senile brain begin insidiously and proceed very slowly without a sudden break or convulsions.

Senile gastric catarrh may be mistaken for *chronic gastritis.* There are no other dyspeptic symptoms than slow digestion; there is no anorexia or vomiting in the senile condition.

Senile climacteric may be mistaken for various forms of *insanity.* The age and history will generally suffice to establish the diagnosis. During a lucid interval prolonged conversation will develop delusions which are soon forgotten.

I have given but a few diagnostic points in these senile conditions, just sufficient to prevent errors. To give all the points of difference in making a differential diagnosis would take more time and space than the scope of this paper would permit.

SOME MODERN MEDICO-SOCIOLOGIC CONCEPTIONS OF THE ALCOHOL, VENEREAL DISEASES, AND TUBERCULOSIS PROBLEMS*

Revised, enlarged and brought up to date by the author for publication in the AMERICAN PRACTITIONER

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ALCOHOL

My first duty, and I assure you it is a pleasant one, is to thank you with all my heart for the honor you have conferred on me by the call to deliver the oration on medicine before this illustrious medical body. It was my privilege to have commenced my medical career in the most western State of all, in the glorious climate of Southern California; and it has been my equally great privilege in late years to have been called to address various medical societies in the Western States and meet men from these States in consultation. So I may say I really feel at home among you, and without further preliminaries will proceed to consider our first topic—the modern medicosociologic conception of the alcohol problem.

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*Oration on Medicine delivered before the Annual Meeting of the Illinois State Medical Society, at Springfield, Ill., on May 23, 1912.

I will try to burden this paper as little as possible with statistics, for I do not believe that any of the statistics published, either on the production of alcohol, the amount of its consumption, or the amount of evils alcoholism is responsible for, are accurate. Besides the legitimate production controlled by the Government, there is the illicit still; besides the consumption of alcohol in wine, beer, and whiskey, drunk at home or passed over the bar in the saloon, there is the large amount of alcohol taken in the form of patent medicines, of which it is said that the American people consume annually $2,000,000,000 worth. Before a sub-committee on Excise and Liquor Legislation of the Committee of the District of Columbia, which convened March 7, 1912, Dr. Irving Fisher, Professor of Political Economy of Yale, quoted from the American Prohibition Yearbook as follows: It is claimed that strong drink costs England $2,000,000,000 annually, and that the total amount annually spent in the United States is over $4,000,000,000. While we know that any number of diseases can be traced to the excessive and injudicious use of alcohol, when this is the primary cause of death the fact is rarely recorded in our statistical tables.

The claim that 25 per cent. of all insanity is due to alcoholism and that a larger percentage of crime can likewise be traced to excess of alcohol, may be approximately correct, but here we have only official data from institutions and the number of epileptics, feeble minded, or those on the border line of insanity who are at liberty have never been counted. Neither do we know half of the crimes committed under the influence of alcohol, for unless the victim has been seriously injured physically and the matter becomes known to the police, nothing is heard of the incident.

Some call alcoholism a curse, a bane, an evil; I prefer to call it a disease, preventable and curable. It would seem to me that for our purpose there is no need to make any distinction between acute and chronic alcoholism. In an acute alcoholic attack a man may be as dangerous as the chronic alcoholic is occasionally, and vice versa. Both states are pathologic, and while there may be no visible pathologic changes, the finer brain and nerve cells surely become affected. Repeated acute attacks of alcoholism or a chronic inebriation by wine, beer, or whiskey are due to an alcoholomania. Whenever alcohol is taken in poisonous amounts we have mental disturbance, muscular incoördination, gastroenteritis, etc.

The symptomatology as well as the pathology are known only too well, but concerning the etiology and treatment from a medicosociologic point of view we need to know a good deal more. Is this disease hereditary or not? I am convinced that the tendency to alcoholism is not infrequently transmitted. The cases on record are quite frequent. Dr. Norman Kerr,* the president of the British Society for the Study of Inebriety, states that among 1,500 inebriates under his care, 755 had a distinct parental inebriety. Crothers in this country collected 500 alcoholic cases with 225 of parental inebriety. In a recent discussion on "The Influence of Alcohol on the Germ Cells and on the Offspring," before the New York Academy of Medicine, Professor Charles R. Stockard of Cornell University quoted the observation of Sullivan, which, I believe, gives the best clinical evidence to justify classing alcoholism as a disease directly transmissible through the germ cells by its influence on the ovum. A sober and industrious woman married a sober and industrious husband and had three normal children. The husband died, and she married a drunkard; the result of this union was again three children; one became a drunkard, one an epileptic, and one a degenerate. This second husband died; the woman entered a matrimonial state a third time, but having profited by her experience with the second husband, chose once more a sober and industrious man. The issue of this union were two children sound in body and mind.

The observations in the Edinburgh prison for inebriates showed that when the mother was the alcoholic parent, the results were even more disastrous, for then abortions, degenerates, children addicted to drink, or afflicted with epilepsy and insanity were numerous. The number was still greater when both parents were drunkards.

Aside from the mental and nervous diseases which afflict those born of alcoholic parentage we can surely consider gout and, in not a few instances, a tuberculous predisposition to be the result of the alcoholic inheritance. Narcomaniac impulses have been manifested at the age of 5 and 6, and this morbid impulse, unless resisted, tends to grow stronger. In some instances the individual seems to be fully aware of this inherited tendency and the danger to which he is exposed. I recall the case of a gentleman of my acquaintance and a coworker in social work, one of the highest type of men I have ever met. He confessed to me that he was certain that his gouty affliction was transmitted to him from his parents, that he had restrained the impulse to indulge in alcohol from the time he could think and reason, and that he was certain that if he were to yield even then to the desire to partake of alcoholic beverages, he would end in the gutter. Such cases of self-restraint are, however, rather the exception than the rule. A vast number of the progeny of the alcoholic, as has just been stated, become addicted to alcoholism, develop into epileptics, become insane, or are degenerates.

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*Twentieth Century Practice of Medicine, vol. iii.

We possess, however, not only clinical but also absolute and irrefutable laboratory evidence which shows the great affinity of alcohol not only for the brain and nervous system but also for all the reproductive glands.

Dr. Stockard, in his communication already referred to, spoke of experiments which showed that by exposing fish embryo to the fumes of alcohol, veritable monsters can be produced, and his experiments with hen's eggs, mice, and guinea-pigs all show that when the embryo is exposed to alcoholic influence in the early stages the result is always detrimental, although in the later stages the influence on the reflex system is greatly lessened.

After thus defining alcoholism as a hereditary affliction or an acquired illness, let us try to look a little deeper into the etiology of acquired conditions in the hope of finding a guide to prophylactic and curative measures. Among the diseases which predispose to alcoholism are rheumatism, gout, syphilis, epilepsy, anemia, uterine troubles, and digestive disturbances due to unwholesome and injudicious diet. Thus we must first cure all these afflictions if we would wish to do away with them as predisposing factors. In women, it is said that menstruation, parturition, lactation, and menopause are not infrequently potent influences in acquiring the alcohol habit; and in boys arriving at the age of manhood the desire to partake of alcoholic drinks often arises not merely because of their entering manhood, physiologically speaking, but also from a sociologic cause—a desire to do as men do.

When the tendency to alcoholism is not inherited, it would seem that the chances for acquiring the alcohol habit are greater after the age of 25, but if we would wish to institute an intelligent prophylaxis it might be well to bear in mind the fact that in young men and, alas, also in young women, the gradual liking for alcohol is developed at a time when they begin to associate with each other in social functions or enter into business life in a more or less independent position.

Idleness as well as monotony in daily physical labor and sedentary occupations are important sociologic factors predisposing to alcoholism. I do not know what remedy to suggest for this except that the employers of large or small bodies of men or women should bear in mind that the efficiency of the worker is increased by rendering him mentally happy and physically well.

That higher culture or a liberal education is not always a restraining influence from alcoholism has already been pointed out; but among the higher as well as among the lower classes of men and women there are other causes underlying alcoholism which are well indicated in the definition by Dr. Smith Ely Jelliffe of New York. He considers alcoholism a purely mental problem. That I do not entirely agree with him you must have already noticed, but his definition that alcoholism is a characteral reaction, the result of fundamental needs, is certainly applicable to a goodly number of cases. To the depressed, to the discouraged, to the disappointed men and women, to the overworked, to the individual who, because of age or infirmity has lost the control of affairs or the prestige in the social or business world he formerly enjoyed, the indulgence in alcoholic drink brings a dissociation of function and an imaginary return to former happier, more contented states, or forgetfulness. When this resort to alcohol becomes chronic, I think Dr. Jelliffe's statement that man then reverts from the highest type of his development to the lower degrees which he had passed through in his evolution is most applicable. It would thus seem futile to treat alcoholism in an individual without having studied his character reaction and found the underlying cause of the desire for alcoholic stimulants —in other words, we must study the true etiologic factor in the individual if we wish to cure him of his disease. It is then that the psychologist, the physician of the mind and soul, can display his power and bring into play his ability to reason with the patient and help him again to a normal state of mind. That in some instances suggestiontherapy, autosuggestion, and even hypnotism, must be resorted to, I am absolutely convinced.

We come now to the last and to my mind most important sociologic factor predisposing to alcoholism, namely, poverty, want, and misery. In nearly all medicosociologic studies of alcoholism which it has been my privilege to read, I have found the stereotyped statement that poverty is an effect and not the cause of drunkenness.

Thus, in the above-mentioned statement by Professor Fisher we read the following: "Since the evidence shows that alcohol impairs labor power, it is not surprising to find poverty coexisting with the excessive use of alcohol and that prosperity increases as the use of alcohol is reduced, as it has increased in Sweden, Germany, England, and in certain places in the United States."

I am not so certain of the increase of prosperity among the laboring classes in England and as far as increased prosperity of the laboring man in Germany and Sweden is concerned, I know that a judicious labor legislation is to no small degree responsible for it. But be this as it may, I cannot help opposing the statement that alcoholism is solely responsible for the presence of poverty. All social workers who have witnessed the misery and want among large numbers of families of laboring men, either underpaid or thrown out of employment because of industrial conditions, will agree with me when I say alcoholism is not infrequently the result of poverty.

After this brief summary, what may we suggest in the line of prophylaxis according to our modern conception of alcohol as a medico-sociologic disease? The first thing that would seem to me essential is to discover during child life, and particularly during school life, as far as it is at all possible, any inherited tendency to alcoholism. Primarily, this would of course be the duty of the family physician and later on of the school physician. In families without a physician, the family history, paternal and maternal, and alcoholic habits should be investigated by publicly appointed physicians with all the delicacy, secretness, and tact necessary for such a task. In the unusually nervous or irritable, anemic or underfed pupil, and the mentally deficient scholar such an investigation would more particularly be justified. The parents' coöperation may be of incalculable value in the preventive treatment for such a child.

In cases where investigation proves that either one or both parents are addicted to drink, the State should have a right to remove the children from the dangerous environments until such time as the parents have reformed their habits or the child's character is formed and it has become strong enough to protect itself.

The treatment of the child predisposed to alcoholism should be physical and moral. The open air school, more outdoor play, and as little home study as possible, ample nutrition, hydrotherapy, and in extreme cases suggestiontherapy, or hypnotism, should be resorted to. It goes without saying that in all children, but particularly in children from an alcoholic parentage, intoxicants in all degrees of potency should be absolutely excluded from the daily dietary.

The continuation of a careful life with abstinence from all alcoholics is of course essential in later years, no matter what career the young man or woman may have chosen. This formation of character of which I have spoken is the only safeguard against the temptation to drink with which the young man, or, to a lesser degree, the young woman in college, shop, factory, or society, is beset. The one and all important lesson these young people must learn is that when overworked and tired out, rest, natural food and drink are the best remedies to overcome fatigue, and that an alcoholic stimulant acts only as a spur does on an overtired horse.

Child labor in factories, workshops, canneries, sweatshops, or child labor at home is injurious to both the physical and moral life. It predisposes to all three diseases which are the subject of our discussion. Indoor confinement and physical strain are some of the surest predisposing factors to tuberculosis; they weaken the delicate nervous system of the child, its moral fiber becomes less resistant, and when the young boy or girl arrives at puberty he or she will succumb easily to the temptation of alcoholic or venereal pleasures. Not until child labor—this blot on civilization—will be eradicated from all our States can we hope successfully to combat in this country these three great social diseases.

I would be remiss did I not call attention to the fact that there is also a dietetic cause predisposing to alcoholism. It is not only lack of food or bad food which create in many a craving for stimulants. I am quite in earnest when I say that bad cooking is indeed a predisposing factor to alcoholism. The doughy fresh white bread, the hot biscuit, the hot cake so dear to the American palate, and the hasty way of taking food, are all factors producing chronic digestive disturbances which many a man believes he can combat by taking alcoholic stimulants. Let our girls learn how to cook, let us do away with indigestible food substances, let us give our employees enough time to eat and digest, and let us take time for these necessary functions ourselves.

Against the use of patent medicines containing alcohol, the long continued use of which leads not infrequently to as distinct a state of chronic alcoholism and as serious a one as that produced by alcohol in the form of whiskey, wine, or beer, government supervision and the education of the masses are the only remedies. By government supervision I mean, of course, prohibition of fraudulent advertising, claiming cures which were never accomplished, the prohibition of fraudulent labeling of packages of food-products or medicine, as to contents or weight. Good and competent men at the head of special divisions of our long-hoped-for Federal Department of Health are of course essential to do this work. It would do away with that one source of alcoholism derived from patent medicines and would certainly tend to minimize the dangers accruing to unfortunate patients from purchasing "sure consumption cures" and the advertised nostrums for the cure of venereal and other diseases real or imaginary.

The young man going out into the world should remember that the so called American treating habit, considered an evidence of good fellowship, is thoroughly un-American, pernicious and detrimental to his physical, moral, and in not a few instances to his financial welfare. I have no hope that the use of alcohol as an occasional stimulant will be abolished within this generation or the coming one, but knowing that this treating habit has been the cause of many a young man, naturally temperately inclined, having lost self-control and become chronically addicted to drink, I would like to see a strong agitation against the custom throughout the nation. To use the language of a beloved teacher of mine, Professor Beverley Robinson, of New York, "let every man pay for and ask for his drink when he wants it, but let him also be an independent 'crittur' and not drink for goodfellowship when he knows it is hurtful to him physically or beyond his means pecuniarily. My feelings are in favor of treating, I humbly acknowledge, but my reason is dead against it."

This would be one of the prophylactic measures which I would recommend as essential to combat acquired alcoholism. Next to it, I believe in education and in temperance societies; not in the fanatical measures of the intolerant teetotaler or the sometimes absurdly unscientific teachings in our public schools about this matter, but in educating the young and the old in a rational manner about alcoholism, and most of all I believe in example.

If people desire to take wine, or beer, or diluted whiskey, let them take it with their meals and they will drink a great deal less; let them particularly do away with the pernicious habit of ingesting alcohol before meals as appetizers in the form of cocktails. I believe there exists in England a society which adheres to the precept of never partaking of alcoholic drinks except with meals. This is a step in the right direction. The formation of temperance societies, I have already said, should be encouraged among professional as well as working men. These societies cannot be too numerous, and I am glad to say that in this country as well as in Germany physicians have taken the lead among professional men and have formed such societies. Our friends the lawyers have not yet followed our example, but there is hope that they will do so ere long.

The discussion of prophylactic measures would not be complete should I not say a word on the question of prohibition. This is a very dangerous path to tread, and I will, before expressing my own views, give the opinions of men of much wider experience and greater knowledge. H. W. Wiley says: "Until within a few years I have been opposed to forced prohibition. If man should never be subjected to any temptation, his stamina of character and power of resistance to evil would undoubtedly be diminished. This would be a very sad condition of affairs if at the same time the evil itself were not obliterated.

"In the last few years I have been so impressed with the evils of the excessive use of alcoholic beverages of all kinds that I feel at times as if universal prohibition could be nothing less than a blessing. At the same time I believe that the very moderate use of the very best old fermented and distilled beverages may be conducive to health and longevity if this use is not begun until the formative period of life is completed."

Professor Simon Baruch, of the Columbia University of New York, is much more drastic in his conclusions, claiming that alcohol is neither food nor stimulant. He desires its complete removal from social life. Professor Muensterberg, of Harvard, has this to say on prohibition: "Prohibition puts a premium on the systematic violation of law and produces a form of corruption which is still worse than the corruption which irradiates from the licensed saloon. Further, it reinforces drinking in its most miserable and dangerous form. The moderate drinker is cut off, while the immoderate drinker is created. It abolishes light wine and beer, and opens wide the way for the worst kind of whiskey. It eliminates every sound supervision and makes minors and inebriates the favorite customers. A clean surface appearance is bought at the expense of inner moral and mental destruction. Worst of all, the masses who feel the instinctive need of an anesthetic quickly find substitutes.

"I speak as a psychotherapeutist whose experiences cover the whole country, if I say that the spreading of cocainism and morphinism, of sexual perversion and ruinous habits among the abstainers is alarming. But even on the surface any one can see to what degree of dulness on the one side and of vulgarity on the other side the masses are led if the means of physiologic relief are cut off from a strong, hardworking population. To fight intemperance by prohibition means to substitute one evil for another. We must institute a reform by slow education toward a moderate use of light wine or beer, with complete abolition of the present saloon and of the present disgusting habits, and that is the only way to permanent success in this country, as long as Americans remain Americans."

Now I may add in a few words my own conviction regarding prohibition. Like the distinguished Professor Muensterberg I question the wisdom of absolute prohibition in our present state of civilization. Could the Gothenberg system be carried out in the United States, I would certainly favor it as a means of decreasing intemperance, and consequently crime and disease. This system consists in the manufacture and sale of alcohol by the government and giving the dispenser of alcohol a salary, so that no benefit shall accrue to him from the amount of alcohol he sells. The law strictly prohibits the sale of liquor to the intoxicated, the habitual drunkard, and to minors. I am almost tempted to suggest this method to some of our prohibition States—it would probably tend more to decrease intemperance than prohibtion laws do now, as they have worked in Maine, for example. However, with a heterogeneous population like ours, the same laws are perhaps not applicable to every State. Prohibition has decreased crime in the South among the negroes; while, if I am correctly informed, crime and arrests for intoxication are on the increase in Maine.

It is the same with individual States as it is with individual men and women; they have their idiosyncrasies, peculiarities, and different constitutions. Some people cannot take a teaspoonful of liquor without feeling the intoxicating effect, others cannot drink the smallest quantity without a desire for more than is good for them being aroused It would seem that in most of our States it will be difficult to enact and enforce strict prohibition laws. To create by a higher license a higher type of saloon, and thus diminish their numbers, would surely have a good effect. To sell alcoholic drinks to minors or intoxicated persons should be severely punishable. But sham regulations which are sure to be violated, such as all Sunday closing, should not be enacted. Let the saloon be closed during church hours on Sunday, but be allowed to open for certain hours in the afternoon and evening.

I know some will doubt the practicability and wisdom of such procedures, but it has been shown that this is the wiser and better way. In the city of Cleveland, Ohio, which is so fortunate as to possess not only a most humane but also a wise, practical and honest chief of police; all kinds of crimes have been diminished, not by an iron rule, but by the golden rule. In a recent address before the Economic Club of New York, Fred Kohler, chief of police of the city of Cleveland, explained his mode of dealing with criminals and violators of the law. Characteristic of his policy is the following sentence: "Golden Rule is the name the reporters wished on us We did not choose it when we started to keep people out of jail instead of putting them in it in Cleveland." Prior to the reign of Chief Kohler in Cleveland, when the usual Sunday closing laws for saloons were in vogue, the arrests for drunkenness were 15,000 annually. Chief Kohler permits the saloon side door on Sunday provided the saloon keeper complies with the prescribed regulations. What is the result? There are now but 700 arrests for drunkenness annually and graft has been eliminated from the Police Department.

I cannot help thinking that fanatical, unreasonable, and impracticable prohibition laws are responsible for the alarming increase of consumption of whiskey in the United States and the decrease of consumption of the much less injurious alcoholic beverages, such as beer for example. According to the latest Internal Revenue report the consumption of whiskey and rum was for the last fiscal year 133,377,458 gallons, which is considerably more than in previous years. The consumption of beer, on the other hand, for the same fiscal period was only 62,108,733 barrels, a decrease of more than 1,108,000 barrels as compared with the preceding year. It would seem that a higher taxation of whiskey and strong drinks in general, and the sale of mild drinks (beer and light natural wine) practically free from taxation, and more liberal Sunday laws would surely tend to diminish alcoholism.

In treating the etiology of acquired alcoholism, we have already mentioned the very important rôle of psychotherapeutics to which the physician must oftentimes resort if he wishes to treat the alcoholic successfully. But this must be preceded by medicinal treatment with a view to ridding the system of the alcohol. All alcoholic patients are poisoned. Alexander Lambert, of New York, says "they must be unpoisoned before they can have a chance to go on as they should go on without their alcohol." Dr. Lambert's treatment of alcoholism is described in the *New York State Journal of Medicine* of January, 1910, and *The Journal A. M. A.* of September 18, 1911. The specific for this treatment is a mixture of 15 per cent. tincture of belladonna, two parts, and one part each of the fluid extract of xanthoxylum and the fluid extract of hyoscyamus. Here is the exact formula:

Tincture belladonna................	62 gm. 2 oz.
Fluidextracti xanthoxyli	
Fluidextracti hyoscyami............	*aa* 31 gm. 1 oz.

To avoid mistakes, I will copy the essentials for the treatment from Dr. Lambert's paper read before the New York State Medical Society: "From 6 to 8 drops of the specific are given every hour, day and night, until either the patient shows symptoms of belladonna excess, or with the cathartics about to be described, the patient has a certain characteristic stool. This specific is increased by 2 drops every six hours, until 14 to 16 drops are being taken; it is not increased above 16 drops. Usually an alcoholic can be given four compound cathartic pills at the same time that the specific is begun. After the specific has been given for fourteen hours, a further dose of C. C. pills is given, either two or four, depending on the amount of action obtained through the use of the previous dose. If these have acted very abundantly, only two are now necessary. At the twentieth hour, two to four more C. C. pills are given, and after these have acted, should the patient begin to show abundant green stools, an ounce of castor oil should be given, and a few hours later the characteristic thick green mucous, putty like stool will appear. Usually the specific has to be continued, and at the thirty-second hour two to four C. C. pills are again given, and a few hours later, the castor oil. The specific can then be discontinued.

"Of course, in treating alcoholics, one finds in the majority of cases the necessity to stimulate them and to give them some hypnotic, but this can be done without interfering with the hourly administration of the specific. During the first twenty-four hours, with the older patients, or with one in the midst of his spree, there should be given whiskey in 1-ounce to 2-ounce doses, four or five times with milk. This should not be continued after the first twenty-four hours, and in young robust subjects it is usually not necessary. The belladonna symptoms which would cause one to cut off the specific and wait until they have subsided before beginning again are: extreme dryness of the throat or the beginning of delirium as shown by an insistence or incisiveness of speech with the insistence on one or two ideas, or belladonna rash, or the general flushed red dryness or heat under the skin, of which they will complain. An alcoholic is more prone to react to belladonna than is the morphinist, but if they are sensitive to this drug, they will show it in the first six or eight hours of the treatment.

"After patients have been through this treatment, the desire for alcohol has ceased, and for the next few days it is simply a question of feeding them, of giving them some tonic, and of seeing that they sleep at night. It is noticeable, however, that following this treatment most of the coal tar hypnotics do not act well. The best one is small doses of trional with codein, but the older drugs, chloral and bromids, act much better. A nonalcoholic tonic will soon set these patients on their feet physically, though whenever possible it is desirable that they should be placed where they can put themselves in as good physical condition as possible."

It goes without saying that such treatment is difficult to carry out at home, and a sanatorium or special hospital where patients can enter voluntarily, or be ordered to enter by judiciary proceedings, is absolutely essential to the solution of the alcoholic problem.

This brings us to a very important subject which has recently occupied the minds of leading specialists and philanthropists in New York City. This is the permanent saving of the dipsomaniac by committing him to live and work in the inebriate farm colony. The purpose of this colony is not only to take care of those committed to it by the courts, but to become an institution to which the inebriate would desire to come voluntarily and not wait to be committed. The New York law provides that the Board of Inebriety shall do everything it possibly can to get the man on his feet and keep him there, and for this reason a force of field officers will work under direct management of the Board as investigating officials before commitment to and after release from the farm. It is believed that a community which will treat its inebriates not as individuals to be punished but as patients who must be treated and cured in such a farm colony, will be financially and morally the gainer.

New York spends annually $1,750,000 for the arrest and care of cases of intoxication, $92,000 to try these cases in the magistrates' courts, about $250,000 for custodial care by the Department of Correction of persons arrested for intoxication, an average of $1.86 a day per patient to hospitals in Manhattan and the Bronx, besides the sums expended by the Department of Public Charities on some 2,000 cases. I believe it is a safe estimate that the various city and State governments of the United States expend at least $20,000,000 on the arrest and care of and court expenditures for people arrested for overindulgence in alcohol.

There is absolute unanimity of opinion among alienists and sociologists that men may be saved to useful lives through the operation of State inebriate farm colonies, and among the heads of institutions it is believed that the large sums now expended in charity and civic expenses will be saved to municipalities, while both give assurance that such farms will greatly reduce the number of insane and criminals.

The marriage of confirmed alcoholics should be prohibited by law; but since this will very rarely prevent them from seeking sexual relation I plead with all sincerity for a universal law whereby the unredeemable alcoholic, whether male or female, rich or poor, shall be rendered sterile. It is only thus that we can prevent him from procreating children predisposed to alcoholism and diseases concomitant with such a predisposition or inheritance. The individual subject to violent alcoholmania and who is beyond treatment should be considered an insane person, confined in an asylum and rendered sexually sterile.

(*Continued in March.*)

THE TOBACCO HABIT

By RALEY HUSTED BELL, M.D.

New York

The tobacco habit is a drug habit. Those of us who like the weed and use it habitually cannot blink this fact. The habitual tea taker or coffee drinker also has a drug habit. But there are drugs and drugs. Some drugs taken into the system are of direct aid to the chemical processes which occur there. Sodium chloride, common salt, is an example quite universal. Salt we know is a drug and not a food; but it is a necessary drug and as benign as sunshine. While it neither produces energy nor tissue it facilitates and makes possible the production of one and the formation of the other. There are other drugs almost if not quite equal to salt as food ingredients. And it will be observed that all these necessary or normal drugs are found in our natural food stuffs, as in our normal bodies. Salt, for instance, is found in milk and in the human tissue. It seems to be a rule that all drugs necessary to health exist in our natural food and normal tissues. On the contrary, unnecessary and harmful drugs do not come under the physiological pale.

Physiologists will be slow to admit that extraneous and unnecessary drugs are harmless when habitually taken. There is no longer any doubt that alcohol as a beverage serves no good purpose, and that in most cases it is harmful. Alcohol made in the system need not be here considered.

In the case of tobacco, nicotine, one of its alkaloids, is classed with atropine, just as caffeine is placed in the morphine group, and alcohol with the ethers. Fortunately, the quantity of nicotine in tobacco is relatively small; and when tobacco is smoked the amount of nicotine absorbed is likely to be much less than when the leaf is chewed. Nicotine is a deadly drug—more poisonous than prussic acid. It was thought at one time that in the smoking of tobacco its nicotine was destroyed—entirely broken up into carbonic acid and water. Since we know more about the volatility of nicotine, however, we understand that when warmed it is, unlike other well known alkaloids, largely reduced to a gas. In its gaseous state it is readily absorbed by the mucous membranes—and a small amount of it goes a long way.

The user of tobacco is attracted chiefly by the effects following the absorption of nicotine and probably other drugconstituents of the plant. The systemic effect of these depends upon the amount which, taken up by the blood, reaches the nervous system, and also upon the readiness with which these poisons are eliminated. The amount of nicotine absorbed depends largely upon the area of mucous surface accessible to the drug. A mouthsmoker naturally absorbs less of the volatile poison of tobacco than one who inhales the smoke, or even one who merely exhales it through the nasal passages from the buccal cavity.

Now, apart from the harm which may be done to the vocal cords from the inhalation of tobacco smoke—the inevitable poisoning of tissue by absorption of nicotine—the greatest harm resulting from the habitual use of tobacco no doubt lies in the fact that nicotine is especially a neurotic poison, and as such produces insidious and harmful changes in the nervous tissue. These changes may be recognized by obvious symptoms. When, for instance, the habitual user of tobacco tries to break the habit he finds himself so poisoned that he is nervous, "shakey," and generally miserable. His nervous system cries for its accustomed "dope," just as the nerves of the morphinomaniac and cocaine user cry for their kind of poison in order to maintain a semblance of well being. And, perhaps, the only good ever obtained from the use of tobacco is in its secondary results—those which neutralize in a measure the bad effects produced by previous doses of the drug.

In a general way I have no more feeling against woman smoking than I have against woman suffrage. I can see no objection to the sterile woman's using tobacco if there is no objection to man's use of it. But here comes in a vital and therefore most important question. Those women who are to mother the future generations are under the heaviest of moral bonds not to use tobacco. Children have a right to all the good health that can possibly be given by the sound tissues of parents. The effect of the tobacco habit on fatherhood may be passed for the moment; but it cannot be passed where it affects the expectant mother. It is sure that anything which tends to poison the nervous tissue of the blossoming mother will be more than likely to disturb the nervous equilibrium of her budding issue.

Functional derangements known as "tobacco blindness" and "tobacco heart" usually adjust themselves when the vicious cause is cut off. This, however, is easier said than done. The primary results of this poisonous habit, as it were, produce secondary results, which continually call for more of the poison, because it acts as a neutralizer. For this reason peppermint and nux vomica, properly administered by a physician, are helpful in overcoming the demands of the secondary results of tobacco poisoning.

Whether smoking produces cancer or not is an undecided question. Some trained observers think one way and some another. But no one can deny that cancer of the buccal mucous surfaces is more prevalent among smokers than nonsmokers.

The most conservative conclusion from all known facts in the case which we can reach concerning the tobacco habit is that it *helps none and injures many*. At best it is a habit to be avoided. Next to total abstinence, it would be well to use the weed in extreme moderation. Now and then a good cigar or a cigarette with black coffee after an unusual meal would harm no one. The custom comes well under the physiologic pale in the consumption of malign drugs.

Tobacco appeals to many psychologically as much or more than physiologically, or shall I say *pathologically?* The smoking of tobacco in moderation arouses just the hint and flavor of romantic dreams perfectly compatible with civilized life. Colonel Ingersoll beautifully expressed tobacco's appeal to the esthetic nature of man. He said:

"Nearly four centuries ago Columbus, the adventurous, in the blessed island of Cuba, saw happy people with rolled leaves between their lips. Above their heads were little clouds of smoke. Their faces were serene, and in their eyes was the autumnal heaven of content. These people were kind, innocent, gentle and loving.

"The climate of Cuba is the friendship of the earth and air, and of this climate the sacred leaves were born—the leaves that breed in the mind of him who uses them the cloudless, happy days in which they grew.

"These leaves make friends, and celebrate with gentle rites the vows of peace. They have given consolation to the world. They are the companions of the lonely—the friends of the imprisoned, of the exile, of workers in mines, of fellers of forests, of sailors on the desolate seas. They are the givers of strength and calm to the vexed and wearied minds of those who build with thought and dream the temples of the soul.

"They tell of hope and rest. They smooth the wrinkled brows of pain—drive fears and strange misshapen dreads from out the mind and fill the heart with rest and peace. Within their magic warp and woof some potent gracious spell imprisoned lies, that, when released by fire, doth softly steal within the fortress of the brain and bind in sleep the captured sentinels of care and grief.

"These leaves are the friends of the fireside, and their smoke, like incense, rises from myriads of happy homes. Cuba is the smile of the sea."

To those who so love the psychology of the weed that the pathology of the habit is of less moment than its dreams—to those who are willing to risk cancer, here and there, "tobacco heart," or "tobacco eye," now and then—sometimes hurt arteries and usually poisoned nerves, I would say, Smoke on, brother! anyway it is better to smoke in this world than in the next. To the sterile woman I would say: Have a good time, sister, while you may! rake in all the cash of compensation within your reach and let the credit go, as saith our beloved Omar. But with the probable mother I would plead, Never mind us men, but I pray you, *spare our babes!*

VACCINES, A MOTHER-IN-LAW AND THE LESSON DERIVED FROM THE COMBINATION

DEAR DOCTOR WAINWRIGHT:

Herewith is a condensed quotation from a letter written to me by a physician.

DEAR DOCTOR:

At your suggestion I have carried out that vaccine treatment with my wife's mother. It was simple Hades, and the whole household are agreed that you are simply "Vile." The depths of which vileness being unfathomable are the only things admitting of any discussion whatever. Had the poor old lady been a cross eyed, truculent hag, the mother-in-law of the greenery gallery comic Valentine, and had I been the revengeful, blue and red son-in-law seeking her with an axe, why I would assuredly have dropped the axe and seized the hypo. to inflict suffering and misery. It (the hypo.) was so much more efficacious.

It added to my blithesome happiness to have my wife join in the Merry War, and help me by saying, "I don't understand it. I saw Dr. Stewart give mother three injections, and she went down town shopping after each one." The vaccines did benefit her a whole lot, anybody could see that, but I am certain the neighbors got the idea that I used to kick the old lady in the shins on the sly, she went limping around so much. I just aimed to load my gun for you and during her recent visit to N. Y. City I had her take one of my vaccine tubes up to you and have you inject. I just smiled Ho, Ho, and also Tee Hee when I thought how I was going to crow over you for making her just as sore as I did. But say, honest, I am in the soup or at least my diminished head is. She didn't have any pain at all. I am sore, awful sore, and I keep getting sorer and sorer. Remember this, all the lies I have told to patients at the clinic as to how vaccines don't hurt are to be put down by the recording Angel to your account, not mine. Because you left undone the thing you ought to have done, consequently you have caused me to do the thing that I ought not to have done. Whenever I told anybody that vaccines did not hurt it was a downright lie. Sometimes they hurt like blue mud. At least the heavy poly or multi-valents did. Now, sit down quick and tell me what I should have done? What you did and everything else that I ought to know?

Condensed quotations from my reply.

DEAR DOCTOR:

Possibly other men have had similar troubles to your own. I have neglected to tell you my technic solely because it was so very simple and natural that I never thought to do so. Here it is. Use all the usual and good antiseptic precautions. Keep your instruments and vaccines in a formaldehyde sterilizer made out of a fruit jar or any wide mouth bottle. (You will recall my article in the *Record* telling how to make such.) Drop into your syringe (Luer) a tablet containing gr. ss Quin. bimuriate and urea, which are cheap by the hundred or thousand. Put on your needle and draw in your vaccine solution. Then put a drop of Tinct. Iodin and Phenol (equal parts) on the patient's skin, and if the very soluble tablet is now entirely dissolved, push the point of your needle through the middle of the iodine smear. Then having done this, it is surely evident that with your vaccine you have also injected a local anaesthetic and antiseptic. Keep your tablets in a colored bottle and the latter in a tight pasteboard box, and thus exclude all light. I have some tablets that are two years old and yet they work perfectly. "The power of the bimuriate of quinine as an anaesthetic commonly extends to a duration of three days or over. Its efficacy as an antiseptic I do not yet know. If you can get a line on it through the muriate, the effective strength of that is 1 to 900 or under. The bichlorides are usually not weaker than chlorides in antiseptic power. s.q. Chlor. Hydrarg and Bichlor Hydrarg.

Finally there is a soreness of more extensive area than the zone of anaesthesia. It is consequent upon swelling, tension, and local over stimulation. While it rarely is annoying on the first day it may become very uncomfortable indeed at a later time. Eliminate all possibilities of an undiscovered idiosyncrasy by giving the patient a couple of tablespoonfuls of a powder composed of equal parts of soda bicarb. and lead Acetate. Order this mixed with water in the proportion of a heaping teaspoonful to a tumblerful of water and have compresses wet with this applied at the first sign of swelling, or before tension causes pain, and maintain the wet dressings until the swelling has disappeared.

SUMMARY

1. Vaccines sometimes pain much and long.
2. This may be forestalled.
3. Quin. bi-muriate and urea will help.
4. No approved and usual precaution should be omitted or neglected.
5. Iodin and carbolic acid (phenol) disinfects and deadens the skin.

Yours, etc.

DOUGLAS H. STEWART, M.D.

The American Practitioner

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

JOHN W. WAINWRIGHT, M.D., EDITOR

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EDITORIALS

INTRAVENOUS MEDICATION

Intravenous medication has but recently come into use in treatment, and while experiences so far reported in current literature would indicate its many advantages over the older methods, it must not be forgotten that it is a major surgical procedure, and therefore to be applied only by those fully acquainted with the technic.

Indeed, the subject of intravenous medication has, especially since the introduction of salvarsan, become of such importance that at the request of the Editor of The American Practitioner, Dr. Abr. L. Wolbarst, of New York City, contributed an original article to the January issue, which was not only highly interesting, but most instructive.

The first question to be determined is whether a given agent meets all the requirements for intravenous use. It must be freely and completely soluble in sterilized water or physiological salt solution; absolutely neutral; the finished solution isotonic with the blood and without harmful effects on the blood and tissue cells, and finally when administered must be absolutely free from sediment or particles. The technic as above stated is surgical and exacting in details. The water used for the menstrum must be recently and very carefully distilled (within a few hours). If physiological salt solution is used the sodium chlorid must be chemically pure (table salt or commercial sodium chlorid contains besides iron, numerous other impurities, which might, doubtless would, chemically affect the medicament), and used in exact proportion to make the finished solution isotonic, allowance being made for the medicament used if a salt. And finally, the solution should be made immediately before injection and administered at body heat.

The site of puncture must be sterile and the needle carefully introduced into the vein selected. This requires skill, or the needle may become clogged with fibrin or coagulated blood, or if not introduced at the proper angle pass through the opposite portion of the vein. It should be introduced detached from the container which holds the solution, and a quantity of blood allowed to flow out before attaching to rubber tube, thus insuring a positive knowledge of its proper position. The solution should be freed from air bubbles by allowing a quantity of the solution to flow through the tube before inserting the needle, and the fluid allowed to flow slowly. It is needless to say that all instruments used should be thoroughly sterilized as well as the hands of the operator.

There are many important points to be noted which can only be mentioned: the point of the needle, its caliber and the steadiness with which it should be held after once in the vein and especially when attaching the tube through which the medicament is to flow, but it would take too much space to include them.

Finally it may be stated that intravenous medication in the hands of those competent to make use of it is a measure that brings notably good results, while it may also be stated that if not properly administered untoward results may, and do in fact frequently occur.

THE PRESENT STATUS OF THE MEDICAL INSURANCE BILL IN GREAT BRITAIN

The one absorbing topic of conversation among medical men in London and elsewhere in Great Britain is the Insurance Bill. At the present time unfortunately matters look very black for the medical profession generally. Up to the time of the last meeting of the Committee of the British Medical Association, it appeared as if Mr. Lloyd George's insidious scheme of getting the doctors of Great Britain under the thumb of the Government and the societies would be easily defeated. A large number, however, of general practitioners took alarm, and despite their pledges at the last minute offered to take service at the Chancellor of the Exchequer's terms. Now the situation is so chaotic that it would be impossible to accurately describe it.

Although Lloyd George and his followers seem to have the upper hand at this juncture, there is still a good deal of fight left in members of the medical profession, and the most hopeful symptom of a very bad case is that, without in any way depreciating those medical men who have "ratted" to save their skins, the brains and weight of the medical profession are against the Bill. Every fair minded person who is not blinded by political partisanship knows full well that the measure is unjust to the profession, a measure designed solely to gain votes at the expense of medical men. Moreover, the methods put into force by the government are despicable. Because the profession is impotent politically, representing only 30,000 votes, it is being coerced, tricked, bribed, browbeaten and compelled to work an Act which they know to be unfair to themselves and unjust to their patients by the threat of taking their living away. If, instead of representing but 30,000 the profession represented a million votes, Lloyd George would coo as gently as a turtle dove, and indeed would never have conceived such a scheme. If the bill does become workable throughout the country, from the medical point of view, it will benefit neither doctor nor patient. The doctor will lose a large part of his income and what he will feel more deeply by far his independence. The patient will not receive adequate treatment or, at least, not the careful treatment he has been accustomed to receive. Furthermore, the hospitals will greatly suffer and the whole machinery of medical practice will be thrown out of gear. The most pitiable part of a pitiable situation is that all this disruption of business and order, and this wrecking of a great profession has been brought about in the name of justice and mercy. Lloyd George and his satellites take to themselves infinite credit and honor for what they have accomplished. They have set themselves, and have succeeded to some extent, in prejudicing the general public against the medical profession, preaching the doctrine that because its members are educated and independent, that therefore they belong to a privileged class and consequently ought to be overturned. If any profession should be outside the domain of politics, the medical should be; but in order to gain his ends by truckling to ignorance, the Chancellor has not hesitated to sacrifice a worthy class on the altar of political expediency. He has sowed the wind and it remains to be seen how long it will be before he reaps the whirlwind.

One significant point stands out in the disgraceful controversy between the medical practitioners of Great Britain and the Government, and that is the dignified part played by the independent British Medical Journals, the *Lancet,* and the *Medical Press and Circular.* This has been in striking contrast to the attitude assumed by many of the lay papers who, misguided by political bias, have reviled the medical profession in no uncertain terms, and have stooped to mislead a public necessarily ignorant on many of the vital points of the Insurance Act. It is a life and death struggle in which the doctors of Great Britain are now engaged, and this being so cannot fail to be of the most intense interest and concern to practitioners in America. No one can say when a similar movement may be commenced in the United States.

WHEAT BRAN

The five outer layers of the wheat seed or grain are known as bran. The three outermost form the skin and constitute 3 per cent by weight of the entire seed. The outer one, known as the testa, contains the greater part of the coloring matter of the bran. It contains iron, a soluble form of phosphorus known as phytin, calcium, magnesium, and potassium, and has been used in the form of a "bran mash" by stockmen for ages, but, as is the case with the outer layers of potatoes, man has given these desirable "waste products" to his cattle, horses, or hogs. Wheat flour as marketed is almost entirely wheat starch, while the potato shorn of its skin or outer layer is potato starch, and therefore devoid of the inorganic mineral substances needed in our daily diet. "Bran is laxative, while the bulk adds very materially to the amount of the feces and excites vigorous and efficient peristalsis, thus promoting a regular daily evacuation of the bowel," says Dr. A. Ernest Gallant, in the New York *Medical Journal,* August 31, 1912. Continuing, Dr. Gallant declares that being composed chiefly of indigestible nonabsorbable cellulose, bran takes up a large amount of water, swells, and adds to the debris and bulk in the intestine, thereby exciting active peristalsis, which rapidly moves the fecal column downward and outward, overcoming fecal stasis, avoiding putrefaction and preventing absorption of the deadly toxines. When bran is taken as a part of the daily regimen, the stool is soft, well formed, bulky, and free from foul odor. It clears up the "liver spotted" skin, indigestion disappears, anemia improves, the skin loses its dryness, becomes soft, of a healthier tint, dandruff, and in some instances acne vulgaris disappear.

It is best taken stirred in a glassful of cold water, mixed with cooked cereal or eaten with milk or cream. It may also be taken in soup, broth, or gruel; or given to children mixed with jam, marmalade, honey, maple or other syrup or spread on buttered bread or toast.

The quantity taken should be one to three or four heaping tablespoonfuls daily. If the laxative effect is too vigorous, the quantity may be reduced. In other or long standing chronic cases of constipation, it may have to be reinforced at first or until habit is reestablished by cascara or phenolpthalein, the drug being discontinued as soon as the habitual stool is established.

Gallant declares that there have been many of his several hundred patients relieved of chronic diarrhea, alternating diarrhea and constipation, mucous colitis, anemia, constipation, constipation due to use of castor oil, the saline waters and other drugs whose secondary effect is that of an astringent.

LEST WE FORGET

In this twentieth century, we willingly admit that the useless hairs scattered over our arms and legs are the remnants of the abundant coat of hair that kept our anthropoid ancestors warm. We may further admit, without a blush, that the habit of swinging the arms when walking is just an unconscious reminder of the long distant day when our ancestors were quadrupeds, and all four of their limbs of necessity kept time together.

DIGEST OF CURRENT MEDICAL LITERATURE

Intestinal Stasis. — At a meeting of the Medical Society of London held on December 9, 1912, the subject of intestinal stasis was fully discussed. Mr. W. Arbuthnot Lane opened the discussion with a paper which was identical in its main features with the one he read recently before the Clinical Congress of American Surgeons in New York.

Mr. H. G. Plimmer, the well known cancer investigator, spoke of his experience of the postmortem appearances of the alimentary tract of animals. In mammals, as the result of about 150 postmortem examinations, he had found that constipation was rarer than in postmortem examinations on the human subject; of about 250 primates 92 died from enteritis, the colon being the chief seat of the affection. In animals there was a greater percentage of actual organic obstruction, that is, of intussusception. Rickets was common among the younger animals, and was associated with constipation of both large and small intestine, more especially of the large intestine. The only symptom of prolonged constipation in them was severe anemia. In nearly all the cases enteritis, suppuration of the gums was present, to which he attributed the enteritis. In his experience he could not trace a closer relationship between cancer and obstruction or constipation than between it and other conditions. Dr. Alfred C. Jordan had concerned himself solely with X-ray examinations of the gastrointestinal tract, and as a result of such examinations no fact had become so firmly borne in upon him as that of the interdependence of the several parts of the gastrointestinal tract. Jordan described at considerable length X-ray photographs which he had taken of the various parts of the gastrointestinal tract, and explained that in the man these tended to substantiate Lane's statements in regard to their condition when intestinal stasis was present. As for treatment he had nothing to say except to refer to the action of liquid paraffin. In persons who were taking this substance it was often impossible to obtain radiographic evidence of intestinal stasis, although patients might present typical features of the disease.

Mr. H. H. Sampson spoke of the relation of intestinal stasis to B. coli infection of the urinary tract. His remarks were intended to apply to the chronic intractable bacilluria with periodic subacute exacerbations, where the underlying pathological condition was probably a unilateral or bilateral pyelitis. In these cases he did suggest that intestinal stasis was not only the primary cause, but also the essential factor perpetuating the condition. Dr. R. Murray Leslie, whose paper was published in the *Medical Press and Circular* December 25, 1912, pointed out that stasis might be produced by neuromuscular atony or by mechanical obstruction. Neuromuscular atony might be congenital or it might be associated with anemia and other debilitating conditions, or indeed might be the result of sedentary habits, especially when associated with matutinal neglect. The nervous factor might manifest itself by a defective reaction to natural stimuli, which might be either natural to the individual or due to a temporary lowered vitality of the nerve centers, as in neurasthenia. Dietetic errors, including the taking of semisolid pulpy food containing an insufficiency of solid stimulating residue, also played an important part. The condition known as enterospasm, which in women might take the form of spasmodic constriction of a portion of the colon, was a not uncommon accompaniment of hysteria and neurasthenia, particularly when these were associated with painful pelvic affections, and if, as sometimes happened, atony of one part of the large bowel accompanied enterospasm of the portion immediately beyond, there was present a combination which specially favored the occurrence of intestinal stasis. Dr. Leslie referred at length to Mr. Lane's investigations into and treatment of intestinal stasis caused by mechanical obstruction. Leslie, like Gordan, spoke in high terms of the beneficial effects of liquid paraffin in the treatment of intestinal stasis, but was of the opinion that in many cases operative measures properly performed were strongly indicated. There is little doubt that intestinal stasis is more frequent by far than is generally supposed, especially amongst women, and from the recent literature on the subject two facts appear to stand out. That liquid paraffin has often a good effect in relieving the condition and that operative measures, when done by such a skilled hand as that of Mr. Lane, have a remarkedly curative effect in cases of obstinate mechanical obstruction causing intestinal stasis.

The Physical Efficiency of Women.—It may be of interest as well perhaps surprise to learn that in the Twelfth United States Census, 1900, women were scheduled as being employed in 295 out of 303 industries or services. Five women are noted as pilots; on steam railroads, 5 as baggagemen, 3 as brakemen, 7 as conductors, 35 as engineers and firemen, and 26 as switchmen, yardmen and flagmen. Six women are reported as ship's carpenters,181 as blacksmiths, 508 as machinists, 8 as boiler makers, 31 as charcoal, coke and lime burners, and 11 as well borers, says Dr. Rosalie S. Morton in an address before the Section on Hygiene of Occupation of the International Congress on Hygiene and Demography, Washington, D. C., September 26, 1912; printed in the *American Journal of Obstetrics*, January, 1913.

In connection with the physical efficiency of women, Dr. Morton refers to a study of women athletes made in 1884 by Dr. Sarah E. Post and another by Dr. Anganette Parry. One found that a bareback rider, 35 years old, who jumped through a hoop six times a minute, rode up to the eighth month of pregnancy, and that a normal child was born at term, weighing nine pounds; another rode to the eighth month, and began riding again four weeks after the birth of this, her fourth child. The woman is in perfect physical condition. Another rider rode to the eighth month and later nursed her child. When asked if theirs were exceptional cases, replied that no one ever heard of any one breaking down in that business. Another woman, mother of a rider, had six living children. A trapeze performer 25 years old has regular menstruation and no pain, flow stops while performing. A Hippodrome acrobat, tumbler and hand balancer, 27 years old, began training at five years, trapeze and rings. First menstruation at twelve; always regular; five days, moderate flow, no nausea or vomiting, no cramps; occasional headache. Flow does not stop while performing. Married at 20. In the first pregnancy performed until fifth month; very easy labor, half an hour. After three months went back to stage; plenty of milk.

Mrs. H., father an American, mother an Indian, educated by missionaries in summer, the rest of the year followed the band of Indians. Married at 20, trapped with husband, poles, tracks boat, handles axe, builds cabins, shoots, hunts, cooks, skilful in Indian woman's practical work, dressing animals, etc. Four healthy daughters in five years. Two younger ones born on the bank of a river, many degrees below zero, where she was entirely alone, and must keep fire, cook, etc. Passed through all successfully.

Dr. Perry pointed out that these women wore no heavy skirts and that their training begain in childhood, that they undoubtedly have unusually strong uterine ligaments, that they are very careful of personal hygiene, have plenty of air, wholesome food and work which they enjoy.

Pelvic Appendicitis and its Treatment.—At a meeting of the West London Medico-Chirurgical Society, held on December 6, 1912, and reported in the *Medical Press and Circular*, December 25, 1912, Mr. Sampson Handley read a paper on pelvic appendicitis and its treatment. He commenced by stating that the paper was based upon his experience of the disease, and dealt with those peculiarities which characterize appendicitis when the appendix occupies a pelvic position; the pelvic signs and symptoms which might arise in connection with a normally placed appendix were not considered. He noted that early operation was specially indicated in pelvic appendicitis, because in the earliest clinical stage of the disease the appendix might be gangrenous or distended to the point of rupture, and because in the pelvis the formation of a small localized abscess round the appendix was the exception. More frequently an unlocalized peritonitis resulted which was very apt to produce inflammatory paralysis of the pelvic intestines. Clinically the disease might be divided into three stages: 1. The stage of hypogastric colic, or ambulatory stage. 2. That of intestinal obstruction. 3. That of peritonitis. Often cases were first seen by a physician in the second stage, for the subjective signs were less marked if the appendix lay in the pelvis. With regard to the treatment of seven cases operated upon during the first forty-eight hours after onset, all recovered. Ileocolostomy was necessary in only two of these cases. Of eight late cases, some of which were first seen in a hopeless condition, five died. It was essential to decide definitely whether inflammatory obstruction was or was not present. In the presence of obstruction an ileocolostomy was necessary. Remembering that the pelvic sigmoid was also paralyzed, it was necessary to provide a temporary safety-valve for the large intestine by tying a catheter into the cecum. Ileocolostomy combined with colostomy was the best method for relieving obstruction of pelvic inflammatory origin.

Several well known authorities took part in the discussion which followed the reading of Mr. Handley's paper and some took issue with him as to the necessity for early operation. For instance, Mr. F. G. Lloyd drew attention to statistics showing that 70 per cent. of cases of appendicitis recovered without surgical interference. Nature, he pointed out, was wonderfully protective and conservative in many cases if the patient were kept at rest, and he advocated operation in the quiescent period when possible. On the other hand, it was important not to delay operation when the physical signs and condition of the patient appeared to justify intervention. Mr. O. L. Addison did not consider pelvic appendicitis more dangerous, or indeed as dangerous, as *appendicitis* elsewhere. Mr. W. McAdam Eccles considered that the appendix lay over the brim of the pelvis more commonly than was usually supposed, and more frequently so in the female than in the male. Mr. Handley in closing the discussion said that true pelvic appendicitis was more dangerous than ordinary appendicitis because it led to obstruction very much more frequently.

Obesity.—The essential part of any treatment, observes the *Post Graduate*, is based upon a change of dietary habits in accordance with the principles of nutrition, supported by a definite regulation of the muscular work to be performed. These measures should extend over a long period; better still, they should be permanently maintained. Actual "obesity cures" are justified only in cases of excessive lipomatosis, when the symptoms imperatively demand a rapid and generous discharge from the organism of the fat ballast; and in cases where it may appear indicated, to remove the patient from unfavorable domestic surroundings, and to exert an educational influence with a view of instituting an appropriate mode of life. The method of treatment must be left to the practitioner's judgment, as to whether the case is one of alimentary or constitutional lipomatosis. In the former the essential and unavoidable point is systematic undernutrition—reduction of the nutriment to a smaller quantity than that to which the patient has been accustomed; being always careful, however, that the organism shall be supplied with the necessary amount of proteids. The food limit of obese patients, at which the metabolic condition of the body will be maintained, is much smaller than is normally required for persons doing a moderate amount of work, always provided the patient's condition is otherwise satisfactory and that the cardiac function is only slightly impaired. By a right selection of meat from animals, birds and fish, eggs, vegetables not rich in carbohydrates, fresh fruit and bread (preferably toasted) in small quantities, we shall have a bill of fare ample for taste, satiation and the caloric requirements. The physician must determine the quantity and quality of the diet for each individual case, due consideration being had to the life habits, the culinary idiosyncrasies, professional peculiarities, social conditions and the general state of health. To regulate the diet in detail one must prescribe the exact quantity in total weight, or at least to state the quantity in accordance with well understood and common expressions, such as one zweibach, one roll, etc. Nor should obese patients partake of more than three regular meals a day—with nothing in the intervals. In patients with alimentary obesity, whose cardiac function is still satisfactory, the amount of liquids must not be restricted if only small quantities are taken during meals. Strong alcoholic or sweet beverages should be avoided. A glass of white or red wine, or of light beer, may be conceded by way of exception. Hand in hand with the dietary changes which are to affect an increased fat metabolism, must go such physical exercises as will effectively attack the fat stores of the organism. We must here consider the patient's general state of nutrition, his former habits as to exercise, and especially the condition of his heart, in order to determine the proper measure of exercise in each case; this exercise should, however, always be kept below the functional capacity of the heart. In order to avoid dyspepsia, exercises should only gradually be increased and should be interrupted by restful pauses. With this restriction patients with alimentary adiposity may row, swim, ride horseback, skate and play lawn tennis.

Treatment for Poison Ivy.—Robert T. Morris, of New York, recommends the following as treatment for "ivy poison." As soon as the symptoms of itching and redness appear, wash the spots thoroughly with green soap and a brush, followed with thorough washing with 98 per cent. grain alcohol. He says that one treatment when used early cures the condition almost immediately. Dr. Morris writes this from personal experience after having been an annual sufferer for years. Having tried it on a number of cases besides his personal experience, he found the above treatment to afford the most rapid and perfect results obtained from any remedy he has ever tried.—*Jour. A. M. A.*

Epinephrin from the Whale.—America is a land of large ventures. We have become used to hearing of enterprises conducted on a magnificent scale, and the ideas which are suggested in an industrial way by the word "enormous" are at times found creeping into the modest domain of science. Now we are hearing of investigations of the ductless glands carried out on whales—animals truly affording superb advantages in point of size. Their adrenal glands, for example, each weigh considerably more than a pound, thus being about five hundred times larger than those from sheep and fifty times larger than the glands from cattle. Structurally the adrenals of the whale resemble those of other mammals, as might be expected. The yield of epinephrin is proportional to that hitherto obtained from other animals, so that as much as 1.2 gm. of the typical active principle has been isolated from a single whale adrenal gland. This is, indeed, an American record.

THERAPEUTIC PROGRESS

Effect of Pasteurization of Milk on Babies.—J. L. Morse, *Boston Medical and Surgical Journal*, June 27, 1912, addressed a series of questions to the members of the American Pediatric Society, of whom fifty replied. The conclusions drawn are extremely general and quite unsatisfactory. The writer (Morse) states it is impossible to determine from the evidence available whether babies fed continuously on pasteurized milk thrive as well as those fed on raw milk or whether or not the continuous use of pasteurized milk predisposes to the development of diseases of nutrition or not. There is sufficient evidence to show, however, that if the continuous use of pasteurized milk is injurious to babies, its possibilities for harm are much less than those of bacteria. All but the cleanest milk should, therefore, be pasteurized before it is given to babies. There is, on the other hand, sufficient doubt as to the innocuousness of pasteurized milk to justify the evidence of pasteurization whenever the character of the milk warrants it.

Treatment of Inebriety.—T. D. Crothers, in the *Buffalo Med. Jourral*, has this to say concerning home or office treatment of inebriety: "I have found a concentrated solution of quassia to be the most effective of all the remedies. An infusion of quassia boiled down once or twice to obtain double the strength may be given to a drinking man with strict injunctions to use a half an ounce every two hours, through the day. He is told that he may drink as usual, but under no circumstances must he neglect to use the medicine. In a very short time a species of quassia poisoning comes on, and all forms of spirits become intensely disgusting and really repelling.

The patient's mind is startled and pleased to think that he can't drink spirits, and while the quassia is very unpleasant, he continues its use. The thought grows on his mind that he probably can never drink spirits again, and he returns to the physician with the deepest gratitude.

Food Values.—Cristadora, *Medical Record*, November 23, 1912, gives a comparison of the food value of bread, milk and meat—the actual nutriment in each to nourish and energize our bodies, discarding moisture in the bread, water in the milk and the moisture and bone in meat. He states that a ten cent loaf of bread weighing twenty-four ounces yields one pound food value. A pound of steak, costing twenty-five cents, 3.2 ounces and four quarts of milk at thirty-two cents, one pound of food value. On this basis, we pay the baker ten cents a pound, the butcher $1.25 per pound, and the milkman thirty two cents a pound. In other words the adult pays $1.25 for his meat while the cost to the body is but thirty two cents.

Iodine in Pulmonary Tuberculosis.—Nieveling, *Berliner Klin. Wochenschrift*, *October* 14, 1912, reports a strong expectorant action following the administration of iodine to those suffering from tuberculosis; it favorably influenced the dyspnea, while the heart's action became stronger and palpitation diminished. No effect was noted in relation to the fever. The iodine seemed to favorably influence the induration, and scar tissue of tuberculous areas, and delayed disintegration of tuberculous material. He favors iodoglidin in tablet form.

Pellagra in Rhode Island.—Harrington, *Boston Medical and Surgical Journal,* November 21, 1912, writes that pellagra has existed in the State Hospital for Insane at Howard, R. I., at least since 1891, and that the total number in all the State institutions at Howard since 1910, of which there is definite record, is thirty-seven, with sixteen deaths, a mortality of 40.5 per cent. He also states that pellagra is not confined to the locality of these institutions, but exists in the community also.

Toxicity of Extract of Hypertrophied Prostate.—Leguen and Gaillardot report in the *Journal D'Urologie,* July, 1912, experiments on dogs and horses which showed a marked toxicity of hypertrophied prostate. The toxicity is manifested by a falling blood pressure and respiratory disturbance when the extract is injected into the animals. They conclude that the removal of the enlarged prostate, not only removes an obstacle to urination, but that it has the additional beneficial effects in that it relieves a gland which exercises toxic properties.

Action of Diastase in Diabetes Mellitus.—In the prolonged daily study the cases of diabetes treated with diastase Williams and Powell, *Quarterly Journal of Medicine,* October, 1912, *J. A. M. A.*, December 21, 1912, have been unable to observe any beneficial effects which could be attributed to diastase. In cases which responded markedly to a course of oatmeal given as advocated by von Noorden, no such effect can be obtained by any preparation of diastase they have used. If there is any specific body in oatmeal which has an effect on carbohydrates metabolism, they are convinced that it is not a diastase ferment.

Content in Antibodies in Colostrum and Milk.—Tunnicliff, in the *Journal of Infectious Diseases,* November, 1912, concludes that normal human colostrum milk contains more opsonins for the streptococcus, staphylococcus and tubercle bacillus than does the later milk, but less than blood serum. Since this is true, it would seem of great importance that the newly born infant should receive colostrum milk.

The Treatment of Influenza in Children.—Breton, in the *Revue des Maladies de l'enfance,* writes that in the disturbances of the respiratory organs in influenza of children, hot packs, counterirritation with mustard and hot baths are advisable. He also regards quaiacol phosphate of great value in the treatment and administers it in doses of four to seven grains per day according to age. When there is involvement of the glands, he advises raw bone marrow.

Therapeutic Action of Metals in Cancer.—Gaylord states, in the *Berliner Klin, Wochenschrift,* October 21, 1912, that Marim and himself years ago were successful in radically healing thyroid cancers of the salmonides by adding iodine, mercury bichloride, or arsenic to water in which the fishes lived. The results were especially noteworthy because the quantity added to the water was very small.

The Iron Content of Goat's Milk has been determined by McLean, *Zeitsch. f. Kinder heitkronken,* Nov. 4, 1912, by the method of Edelstein and Comka. The quantity was determined from 127 to 263 milligrams per 1000 c.c. These results show that the iron content of goat's milk is greater than that of cow's milk, and that it is approximate to the quantity contained in human milk.

AT YOUR LEISURE

AN INSANE CLASSIC

A penniless lawyer of Chicago, hopelessly insane, who was an inmate of the hospital at Dunning, died a few years since, leaving nothing but the following prose poem, in the form of a will. It will outlive many a learned treatise destitute of imagination, fancy or sentiment; and even many a bit of verse illuminated by the glow of true poetic feeling Incidentally it illustrates the kinship which often subsists between talent and mental observation, and may serve and correct current misconceptions with reference to the nature of insanity.

"I, Charles Lounsberry, being of sound and disposing mind and memory, do hereby make and publish this, my last will and testament, in order, as justly may be, to distribute my interest in the world among succeeding men.

"That part of my interest, which is known in law and recognized in the sheep bound volumes as my property, being inconsiderable and of none account, I make no disposition of in this, my will. My right to live, being but a life estate, is not at my disposal, but these things excepted, all else in the world I now proceed to devise and bequeath.

"Item: I give to good fathers and mothers in trust for their children, all good little words of praise and encouragement, and all quaint pet names and endearments, and I charge said parents to use them justly, but generously, as the needs of their children shall require.

"Item: I leave to children exclusively, but only for the term of their childhood, all and every, the flowers of the fields, and the blossom of the woods, with the right to play among them freely according to the customs of children, warning them at the same time against thistles and thorns. And I devise to children the banks of the brooks and the golden sands beneath the waters thereof, and the odors of the willows that dip therein and the white clouds that float high over the giant trees. And I leave to children the long, long days to be merry in, in a thousand ways, and the night, and the moon, and the train of the milky way to wonder at, but subject, nevertheless, to the rights hereinafter given to lovers.

"Item: I devise to boys jointly, all the useful, idle fields and commons, where ball may be played; all pleasant waters where one may swim; all snow clad hills where one may coast; and all streams and ponds where one may fish, or where, when grim winter comes, one may skate, to have and to hold these same for the period of their boyhood. And all meadows, with the clover blossoms and butterflies thereof; the woods with their appurtenances, the squirrels and birds and echoes and strange noises, and all distant places which may be visited, together with the adventures there found. And I give to said boys each his own place at the fireside at night, with all the pictures that may be seen in the burning wood, to enjoy without let or hindrance, and without any incumbrance of care.

"Item: To lovers, I devise their imaginary world with whatever they may need, as the stars of the sky, the red roses by the wall, the bloom of the hawthorne, the sweet strains of music, and aught else they may desire to figure to each other the lastingness and beauty of their love.

"Item: To young men, jointly, I devise and bequeath all boisterous, inspiring sports of rivalry, and I give to them the disdain of weakness and undaunted confidence in their own strength. Though they are rude, I leave to them the power to make lasting friendships, and of possessing companions, and to them exclusively, I give all merry songs and brave choruses to sing with lusty voices.

"Item: And to those who are no longer children, or youths, or lovers, I leave memory, and I bequeath to them the volumes of the peoms of Burns and Shakespeare and of other poets, if there be others, to the end that they may live the old days over again, freely and fully without title or diminution.

"Item: To our loved ones with snowy crowns, I bequeath the happiness of old age, the love and gratitude of their children until they fall asleep."

The above contribution may perhaps reconstruct some of the current ideas concerning the nature of insanity. It was given Samuel E. Earp, M.D., by Professor B. D. Myers, of Indiana University, who clipped it from *The Institution Quarterly*, Volume 2, Number 3, State of Illinois: Board of Administration, December, 1911.—*Indianapolis Medical Journal.*

JENNY LIND

It is said that when Jenny Lind was just beginning her career, which was later to electrify the music-loving world, being in London, was invited to sing before Queen Victoria. Madame Grisi, then at the height of her great fame, and the idol of lovers of her art, who was in London filling a marvelously successful engagement in opera, was also invited for the same purpose and the same day. These two had never met nor was either aware that the other would be present at this particular reception given by the Queen. Jenny Lind, but sixteen years old, had, of course, heard of Madame Grisi and admired her greatly. The Madame had heard of Miss Lind, and regarded her as an upstart in a field which was all her own. They repaired to the Queen's palace, where later Madame Grisi was called upon to entertain the Queen and her guests. To say that she was perfect mistress of her art and sang beautifully would be but faint praise; the notes poured forth in tumults and torrents from her marvelous throat; the richest harmony swelled into almost life until the air seemed about to burst forth into song for very envy. Every one present was charmed. Then Miss Lind, the shy, blushing girl, came forward. Her timidity at thus facing royalty and her embarrassment at following the world-famous Grisi, unaware of her own power to charm, can but be imagined. She tried and failed to utter a sound other than a sob when she realized her failure. Turning away almost heartbroken, she met her rival's rude stare and triumphant sneer so full of hatred that she was almost paralyzed. Stung to the quick, and realizing that to retire now would be ruinous to her future, she measurably calmed herself and asked the Queen if she might try again. Permission was readily granted, when she seated herself at the piano and accompanying herself began to sing a simple song, a child's prayer set to music, one that she had learned to sing upon retiring at night asking forgiveness for what she had wrongfully done during the day. A simple song full of purest faith and love. Slowly and softly she begun, each note as pure, clear and sweet as music from the purest chimes. Every word breathed forgiveness; a wealth of love as gentle as was the heart from which they came. And then as if appealing for help, forgetful of self and surrounding, her face shone as with a heavenly light, and from that child throat there rushed such a mighty tempest of divinest melody, sobbing, raging, thrilling and awed, until from out the skies above there seemed to come voices to join with her in one grand and glorious aria. Then her voice grew soft and low, with again suppliant murmurings, as plaintive and painfully sweet as the moanings of the sea to him who has lived upon its bosom; and almost is if some spirit which had been hovering watchfully over her whispered that the day of peace had broken; her song ended as a song of gladsomeness and thanksgiving as joyous as the babbling of a summer brook.

Her triumph was complete, and envy, jealousy and hatred were silenced.

LOVE

"Love is the dawning of yesterday's to-morrow. It is the rising of the sun, from somewhere in the hush and haze of eastern sky; where gray mists mingle for the moment with the reddening glow of coming day. It comes as silently as the feather wafted in midair, as mysteriously as the turning of the tide. It is a streak of gold upon the crimson; the virgin blush on timbered hill and dale and lo! —love—great omnipotence, throws open its mantle of melody; for love is melody; the music language of the universe. Within its reign ambition becomes a task accomplished, it lifts up the lowest and exalts the highest. And then silently into the dusk of twilight it dissolves itself into a mirrored reflection of mellowed moonlight."

THE UNEMBELLISHED ONE

Drape me with a fig-leaf, said Prudery.
Decorate me with epaulets, said Mediocrity.
Clothe me in the dress of righteousness, said Sin.
Deck me with the garments of innocence, said Vice.
Put sincerity's gown upon my shoulders, said Deceit.
Place the crown of fidelity on my brow, said Disloyalty.
Cover me with the draperies of love, said Lust.
Give me the staff of tolerance, said Persecution.
Adorn me with the cloak of liberty, said Tyranny.
Beautify me with the dress of duty, said Irresponsibility.
Garb me with the habiliments of humility, said Pride.
Then Truth said: Let me be naked and unashamed.

Victor Robinson.

MISCELLANY

THE TASK OF SOCIAL HYGIENE

By Havelock Ellis

Mr. Havelock Ellis has written a book with the above title, which was reviewed in the New York *Times*, November 17, 1912, by Joyce Kilmer. As Mr. Kilmer's remarks reflect the attitude of a large number toward the recently much discussed subject of eugenics, we herewith present in abstract his criticisms:

Writing generally of the book, we find in substance the following: "Whatever is new, is right," may be considered Mr. Ellis's motto, if we may accuse him of so old-fashioned a thing as a motto. That the theories which he advocates are at variance with each other does not in the least discourage this picturesque enthusiast. Modernity is the one virtue he recognizes. The individualism of Nietzsche and the socialism of Karl Marx share his affection. And he is an optimist in everything—in fact, he is the greatest living optimist. Tell Mr. Ellis that the plague has smitten New York, that the Turks have taken Berlin, and that London Bridge is falling down, and he will delightedly show how these phenomena are intimately connected with the rise of man, with the progress of "social hygiene." For instance, Mr. Ellis, like every student of social problems, finds himself confronted by the lamentable fact of the falling birth-rate. That Mr. Ellis hails this fact with extraordinary delight, calling it a proof of a high state of civilization, that he actually holds up for admiration "a state of general well-being in which the births barely replaced the deaths," must not be taken as a proof that he is deliberately fantastic. He is trying with attractive earnestness to live up to the modern creed, which is simply "I believe in modernity."

Books like "The Task of Social Hygiene" are entertaining and should be harmless to readers over fifteen. But the trouble is that not all people will give Mr. Ellis his due. He is an artist, and should be so regarded. He collects the latest fashions—"Votes for Women," "Eugenics," and the rest—and describes them as vividly and charmingly as he described, in earlier days, the people and cities of Spain. But some of the people who share with him his enthusiasm for things new and strange insist on regarding him not as a brilliant journalist but as a scientist, a writer of text books, a serious teacher. And we shall undoubtedly find earnest and humorless young men and women who are frantically endeavoring to form their lives on this book, to be Socialists, Individualists, Anarchists, Eugenists, Pacificists, Internationalists, Languagists, Suffragists, Free-Lovers and

Neo-Malthusians all at once, with the unfortunate Mr. Ellis for guide.

In a division of Mr. Ellis' book, "Eugenics and Love," Mr. Kilmer has the following pungent criticism:

Of course, Mr. Ellis is heartily in favor of Eugenics. Who is not? Does any one say "Children shall not be born well?" It is by no means a new science. Even before Francis Galton, a certain philosopher, noted that if the fathers ate sour grapes, the teeth of the children would be set on edge. And that the sins of the fathers are visited upon the children was known in the days of Moses. A Eugenic programme, some centuries old, consists in the attempt to keep the father from sin. The new Eugenist wishes to keep the sinner from fatherhood. And not only the sinners (forgive the archaic term!) are to be restrained from marriage, but the invalid, the mentally or physically deficient—all, in fact, who are not almost perfect. It is a splendid idea. No more destructive unions like those which produced the consumptive Keats and Stevenson, the lame Byron and Scott! Would Robert Browning marry this bed ridden invalid? Put him in jail, and take Miss Barrett to the Segregated Colony!

It is, we repeat, a splendid idea. But like many beautiful modern schemes it is sentimental, visionary, and impracticable. You can by hammering into a man's head certain crude facts about sin and its consequences to himself and his family make him lead a decent life. This really has been done once or twice in the history of the world. But reams of law and armies of police cannot keep men from begetting children. Nor will the members of any community ever be so blindly bigoted, so fanatical, so degenerate, as to take on themselves the hideous task of condemning their fellow-men to sterility because of some slight physical or mental imperfection.

EFFECT OF COLD AIR ON THE BLOOD PRESSURE OF TUBERCULOUS CHILDREN

Hoobler presented to the section on Pediatrics of the American Medical Association, June 5, 1912, at Atlantic City (*Journal of Obstetrics, October*, 1912) a proper showing from a large number of experiments that the blood pressure of children in various stages of tuberculosis was considerably below the normal. But that when a patient was transferred from a warm hospital ward to the open air there was gradual increase of blood pressure. If the patient was kept constantly out of doors he found that the pressure reached nearly normal limits and sustained that point as long as he remained out of doors. He found that the more advanced the case the lower the pressure went in the ward, but when transferred to the open air it rose proportionately more degrees, so that even quite advanced stages approximated very closely normal pressure. He considered this the most rational basis for urging such measures as open air schools, roof camps, open air playgrounds, sleeping porches and practically living in the open air not only for tubercular children, but all classes of debility and lack of vitality.

SKIN DISEASES IN RELATION TO THE SEXUAL ORGANS

In the New York *Medical Journal,* October 5, 1912, Skin Diseases in Relation to the Sexual Organs, by S. Pollitizer, M.D., New York, he writes it has been suggested that the pruritus, urticarias, and dermatitides of pregnancy are variations in grade of the effects of a single toxic agent which may possibly be responsible also for hyperemesis, nepthritis, hepatitis and eclampsia. According to this hypothesis all these considerations are due to anaphylaxis brought about through absorption of foreign proteids from the placenta or the fetus. Wechselmann and Scheuer, in a careful study of impetigo herpetiformis, came to the conclusion that its cause is to be found in the toxines or ferments produced in the placenta. These speculations are worth noting only in so far as they may afford a basis for experimental therapeutic efforts. In this connection it is of interest to record the observations of Linser, who brought about prompt cure in a series of cases of dermatoses in pregnant women by the intravenous or subcutaneous injection of twenty or thirty c.c. of serum from the blood of healthy pregnant women. Controls made with serum from nonpregnant women were without effect.

RAVAGES OF CATTLE PARASITE

"An important factor in the high cost of living is the insect known as the tick, which by attacking cattle in every part of the country is costing the people $100,000,000 annually," said Dr. Peter F. Bahnsen, State Veterinarian of Georgia, in addressing the United States Livestock Association recently in Chicago.

This little insect, he says, causes every man, woman and child in the country to pay tribute to it in dollars and cents. It directly increases the cost of all kinds of meat by the great damage it does to cattle.

The best known and most destructive of the eight species of cattle ticks found in the United States is the *Boöphilus annulatus,* which transmits the dreaded Texas fever. This disease is of particular virulence among Northern cattle that have been shipped

South or that have been brought into contact with Southern cattle, infested with the parasite that have been brought North.

ACTION OF SHRIMP ON TIN

The popular idea that only acid substances attack tin is wrong. Fish, asparagus, beans, pumpkin and spinach are not acid and yet their corrosion of tin is quite marked. This is probably due to amino compounds, substances related to ammonia. In the case of shrimp, the cans are often eaten through in a comparatively short time. So alkaline is the methylamine contained in the shrimp that workmen in the canneries find the skin peeling off their hands and their shoes eaten through. Shrewd observation by some canners led to the discovery that if the shrimp were iced for a day before canning the corrosive action of the juices was greatly diminished. This is now the universal practice. In addition the cans are lined with paper to prevent contact of shrimp and tin.

A HIGH-PRICED SURGEON

A poor woman one day consulted the surgeon Tobert de Lamballe in his sumptuous apartment in the Rue de la Chaussee d'Autin (New York *Times,* December 7, 1913). The consultation over, the woman timidly laid on the table a fifty-sou piece, and started to leave the room, when Tobert called in his most caressing tone, "Madame!"

The unfortunate woman, who had probably almost starved herself to save this little sum, turned, convinced that the surgeon was going to reproach her for her stinginess; but he, with his ordinary brusqueness, said: "What does this mean? You give me 100 francs and do not wait for the change!" And he slipped into her hand, in spite of her protests, 4 louis, and gently pushed her from the room.

PREVALENCE OF PELLAGRA IN GREAT BRITAIN

Within the past few years, the greatly increased interest in the study of pellagra has led to the discovery that it is far more widely prevalent than was formerly realized. Recent investigations by Dr. Sanborn in Great Britain indicates that the disease is endemic in Fifeshire, Forfarshire, Aberdeenshire, the Shetland Isles, Essex and the Thames Valley.—*J. A. M. A.,* December 26, 1912.

BOOK REVIEWS

Principles and Practice of Obstetrics. By JOSEPH B. DE LEE, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School. Large octavo of 1060 pages, with 913 illustrations, 150 of them in colors. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, $8.00 net; half morocco, $9.50.

This voluminous work is the outgrowth of a volume, by the author, entitled "Notes on Obstetrics," used for fourteen years as a text-book by junior and senior classes at the Northwestern University Medical School, Chicago. It was written to meet the needs of the general practitioner, as well as the student. Diagnosis has been made a particular feature, and the relations of obstetric conditions and accidents to general medicine, surgery and the specialties been fully brought out. Twenty-one years' experience as a teacher of physicians, students and nurses is reflected in the pages of the work. It is divided into four parts: The Physiology of Pregnancy, Labor and the Puerperium; Conduct of Pregnancy, Labor and the Puerperium; Pathology of Pregnancy, Labor and the Puerperium; and Operative Obstetrics.

A careful examination of this work assures us that it covers the field in all that pertains to a thorough understanding of Obstetrics; we are unable to detect anything which could have been added that would have made it more complete. This is all the more surprising as the author has introduced much that heretofore has been relegated by writers of obstetrics to other branches of medicine, such as surgery, treatment in the puerperium, physiology, diagnosis and pathology. No work extant on the subject known to us so fully covers the field, or so impresses us as being so thorough and complete. We could not say more in commending the work to the entire medical profession, actual or prospective. The illustrations are very beautiful, and having been made from photographs necessarily accurate. Print, paper and binding could not be improved upon. We predict for Dr. De Lee's great work a very large sale.

Cancer: The Problem of its Genesis and Treatment. By F. W. FORBES ROSS, M.D., Edin., F.R.S.C. Eng., D.P.H., Lond., Late Civil Surgeon, His Majesty's Guards Hospital, London. London: Methuen and Company, Ltd., 36 Essex Street. 1912.

Of all the problems with which the physician or surgeon has to deal, that of cancer is the most serious and least amenable to treatment. Millions are expended annually in the study of the disease, the most painstaking and exhaustive experiments are made by scientists, and yet hundreds of thousands, if not millions, die each year either from direct or remote causes. Like tuberculosis, it exacts its toll, but unlike that scourge its etiology is not understood, nor has a cure other than the knife been heretofore discovered. Remedial agents—cures—are exploited, the results of experimentation, while also the vandal reaps a rich harvest in the sale of nostrums. The X-ray, radium, toxins, vaccines have succeeded one another, and they have each been reported as successful in numerous cases, but the heart-rending fact has been forced upon us in each succeeding series of experiments that in the majority of cases they all fail and the surgeon is called. Doctor Ross advocates the potassium salts in the treatment of cancer, and in his really interesting book under review would seem to prove his claims. The subject is, however, too large a one to intelligently discuss in a book review. Certainly his views should not be frowned out of court, but those interested in cancer—and who is not—should make careful study of his work.

The Story of a Doctor's Telephone. Told by His Wife. By ELLEN M. FIREBAUGH, author of "The Physician's Wife." Boston: The Roxburgh Publishing Company, 1912.

This is a very enjoyable book, written by one who has personally had the experiences therein given, with a detail, humorous, pathetic and true to facts. Aside from the vein of humor, of pathos, personal insight into family affairs, there is the touch of sympathy with frequent glimpses of the artist. For the authoress tells us of glorious sunsets—changing pictures seen in the clouds—of birds of rich plumage and exquisite song; of voices in the woods, with exquisite foliage, of the beautiful flowers with rare fragrance; while running through it all we catch here and there an insight into the inner circle of a charming home life, which she unconsciously reveals

It is a book to delight the physician, his wife and children. Once in the home, it will be enjoyed by all.

Psychanalysis: Its Theories and Practical Application. By A. A. Brill, Ph.B., M.D., Chief of the Neurological Department of the Bronx Hospital and Dispensary; Clinical Assistant in Psychiatry and Neurology at Columbia University Medical School Octavo of 337 pages Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $3.00 net

So much is the interest of the profession centred on all studies designed to clear up or to improve our understanding of that vast group of cases classed under Hysteria, Neurasthenia and various other border line manifestations that any serious work treating of these states is certain of a wide and earnest hearing.

Medical literature of late has abounded with articles dealing with Psychanalysis, its methods and results, and so widespread has interest in the subject become that the general profession is interested, perhaps quite as much as those whose special studies have to do directly with this class of disorder. Nonetheless a very wide difference of opinion still exists in regard to the value of the method and the generality of its application, even among those practitioners best qualified by training to judge as to the subject. Hence it is but natural that very much confusion of mind exists in the general medical public, and for this reason particularly Brill's book appears most opportunely.

In the review of any work on a relatively new viewpoint or topic criticism naturally divides itself into that of the theory or method and that of the presentation of the subject as given in the work under discussion.

No one who is in any way conversant with the trend of recent study of the neuroses and of allied conditions, and who has honestly considered the newer methods now proposed for their study, can but admit that much of great value lies in them. This is particularly true since this technic is directed toward conditions which have in the past been almost or entirely barren of result when theories were put to the crucial test of treatment

Brill takes the stand of an abject disciple of Freud. Apparently other and perhaps broader conceptions of the method without its one and dogmatically ultimate basis of the sexual instinct have interested the author but slightly. Thus the more natural and broader conceptions of Jung, of Jones and even the old but still unexhausted methods of routine psychological study do not appeal to the author, who is apparently content to practically attribute almost if not all of the minor mental aberrations to repressions of the sexual instinct.

To those of us who still believe that many such conditions may arise out of such primitive instincts as fear, self preservation, or who think that certain at least of these neuroses follow as a natural result of mental shock, or of suffering, as in certain types of chronic disease, or from starvation, exposure and still other physical conditions. Brill, as well as Freud, appears to give too much weight to the sexual repressions and their outgrowths. No honest student can but recognize the great importance of the sexual instinct and its myriad aberrations in the causation of such mental disorders, but it is the over emphasis which the author places on this one factor that the average medical man or psychologist must object.

That alleviation, perhaps in many instances even cure, of these conditions does follow Psychanalysis cannot be disputed. But, on the other hand, it would seem that, improperly applied, great harm might be committed by ill advised attempts in this direction, especially with sensitive or imaginative patients. That harm may be caused by the method improperly applied is of course no more argument against it than against ether or other powerful drugs unskilfully administered because injury may be done by them but at least it should be stated that the methods should not be attempted by those unskilled, or except in carefully chosen instances

In so far as clearing away the widespread prejudice against the methods of Freud is concerned, it cannot be said that this book advances in the least

It is ultra Freudian in its every tendency, and the possibility of other methods of approach or interpretation does not apparently seriously occur to the author.

On page 20 it is stated with all evident seriousness that "every insane utterance, every morbid perception has a definite meaning and a definite *raison d'entre* when analyzed." Is one justified in so broad and general a statement?

On page 25 we find that "it is the mental conflict which is the essential causative factor and not the sexual moment as such." And yet all other conflicts, even when founded on so primitive a trait as self preservation, are relegated to most minor positions as causative of these disorders. It seems strange that any one conversant with the severe and all absorbing struggle for existence and progress manifest in most activities of this day should not consider these as frequently causative of such conditions as hysteria, neurasthenia and the like, and it will take much more cogent arguments than are presented in this work to disabuse the average medical mind that this is not true. Indeed, we find on page 82 of this work that overwork, exhaustive exertion, etc., *may* cause neurasthenia as well as may sexual repressions.

To most medical men the immense importance which the author has given to the interpretation of dreams must come as a startling surprise, and it must be confessed that after reading the examples of dream interpretation stated—for example, on pages 49, 55, 56 and 63—one can hardly feel so certain as the author that, "The dream never deals with trivialities, and no matter how simple and innocent it may seem, an analysis will invariably show that the thoughts behind it belong to the innermost recesses of personality" (p. 54). One would be much more inclined from the author's presentation of the subject to infer that more was dependent on the determination of the analyst's imagination than on the contex of the dream. Such conclusions as the author draws from dream analysis are enough to make the most bucolic abjure forever late suppers and all delectable and other indigestible articles as well as general habits which in our profound ignorance we have in the past been led to think responsible for certain types of dreams, and now are told that they are the result and exposition of sexual repressions. It is but fair to the author to state, however, that because of the length of the dreams and his analysis of them, doubtless all considerations could not be given, none the less it would appear from the examples cited that he has chosen his facts unwisely, if it be intended to indicate analysis and not preconception.

Although the reviewer is disposed to criticise this work somewhat severely, and especially because in his opinion the dangers of the method, at least in unskilled hands, are not adequately pointed out, nor the subject discussed in a scientific, dispassionate and analytical way, yet the book is a valuable one. It deals with a subject too long neglected by the profession, and it presents methods of study and of treatment which obviously have immense value. Its direct tendency to tear down the foolish cloak of prudery in regard to these important physiological factors is most commendable and necessary for the medical profession, and a thousand times more for the educated public.

Prominent on every page of the book is the author's direct and straightforward honesty, his very evident absolute faith in his methods and his perhaps unwise and misguided but certainly honestly conceived and frankly expressed opinions.

Although the reviewer is not prepared to accept so generally the foundation on sex theory, he wishes to particularly commend the chapters on "Hysterical Fancies and Dreamy States," and to particularly praise the discussion on "The Only or Favorite Child in Adult Life." Especially in this last chapter the author seems to get away from preconceived theories and to deal directly with personal studies and conclusions based on them.

As to the general make up of the book little need be said aside from the mention of the publisher's name. A few typographical errors exist, as is almost inevitable in first editions, and one cannot but wish that publishers in producing books of this relative size might consider the size of the overcoat pocket of the oft-mentioned "Busy Practitioner."

The American Practitioner

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ORIGINAL ARTICLES

TUBERCULOSIS IN LONDON

By HALLIDAY SUTHERLAND, M.B., Ch.B., M.D., Edin.
London.

Fellow of the Royal Society of Medicine, Medical Officer to the St. Marylebone Tuberculosis Dispensary, London

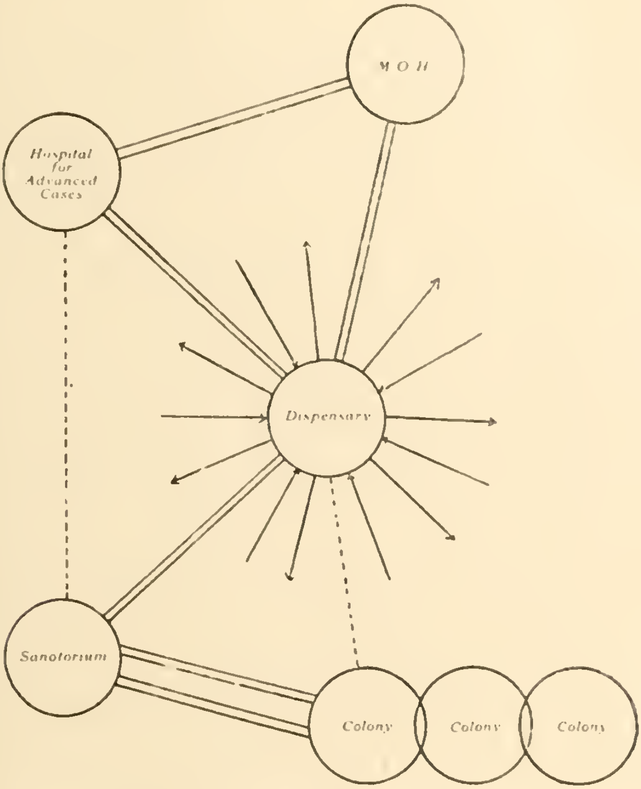
In accepting the invitation to contribute an article for American readers, I feel it might be of interest, in view of the present very great activity against tuberculosis throughout the United Kingdom, to describe the remarkable growth of a recent antituberculosis campaign in London. This the more so, because the clinical and administrative scheme for the control and eradication of tuberculosis with which this paper is concerned, is in no way novel to the people of the United States. In America the Edinburgh System has received at once not only its most generous recognition, but also its earliest adoption outside this country.

THE PROBLEM OF TUBERCULOSIS

In every hamlet, in every city, and in every country the tuberculosis problem is the same—a very varied one. It is an infant mortality question, and again is intimately associated with the poverty and destitution of adult life. In dealing with tuberculosis we are concerned with school children, with the economic conditions of industrial life, with the purity of food and drink, with the housing of the working classes, and with general sanitation. A realization of this implies that no single agency can bring about the total eradication of this disease. So self-evident a truth has been widely accepted in the past, and strangely enough to its very acceptance is to be traced much of the failure to apply adequate measures against this malady. The philanthropist may send an infected child to a seaside home, the politician may bring the dying consumptive into the wards of an isolation hospital, but the pathogenic process which each attempts to tackle according to his lights is one and the same. From childhood to old age, of many forms and varied types, it is one disease, while the factors favoring its spread are likewise constant. A population that is overcrowded and improperly fed, living in dark tenements or in back-to-back houses, working long hours in ill ventilated workshops for a sweated wage, drugged by bad liquor, and always within a few hours of actual want—this constitutes for the most part the soil on which tuberculosis thrives. In order to provide appropriate treatment for patients in various stages of the disease, a variety of institutions are required, but in the interest of preventive medicine it is essential that the work of these be coördinated, and that at least one of these institutions stands in intimate association with the population amongst which the malady is most prevalent.

CARDINAL POINTS OF THE EDINBURGH SYSTEM

The genesis of this System was the foundation at Edinburgh in 1887, by Sir Robert Philip, of the first tuberculosis dispensary in the world, around which the entire coördinated scheme has gradually evolved. This because the work of the dispensary revealed the hitherto unknown fact that in every area there is a large number of unknown and undeclared cases of tuberculosis, for whose care absolutely no provision hitherto existed. Even for the great majority of the obvious cases, until the tuberculosis dispensary came into being, there was little else save advice and a bottle of medicine at the out-patient department of a general hospital. Under the Dispensary System this is entirely altered. To the dispensary all those not already under medical care may go for examination, diagnosis, and treatment. In the case of every patient diagnosed to be suffering from pulmonary tuberculosis, a physician and nurse visit the home for a dual purpose. First, that the patients may be educated in the open air treatment, and in the protection of others by the observance of a few simple precautions. Incidentally, it is essential for the success of an antituberculosis movement in any country that the public mind be educated to the knowledge that the ignorant consumptive is a source of danger at home and abroad, whereas the instructed consumptive is a danger to no one. Secondly, the medical officer examines all those who have been in contact with the patient—this being termed the "March Past of the Contacts." The result is that the early cases are diagnosed and placed in the way of cure while they are yet curable. Again the dispensary is the "clearing house" for the other institutions in the scheme—the tuberculosis school, the sanatorium, the farm colony, the hospital for advanced cases, the public health authority and relief agencies—its relation to these being indicated in the following diagram.



DIAGRAMMATIC REPRESENTATION OF THE EDINBURGH SYSTEM

The double lines indicate frequent transference of patients. The dotted lines indicate less frequent transference of patients.

RELATIONS OF THE DISPENSARY TO OTHER INSTITUTIONS

From the dispensary suitable cases are sent to sanatoriums for cure, and thence a certain proportion proceed for more prolonged treatment to a farm colony, in order to ensure that an economic as well as a clinical cure may be attained. The children attending the dispensary are taught the value of fresh air and sunlight at tuberculosis open air schools under the medical administration of the dispensary. Advanced cases, where home comforts are small and the danger of infection to others is great, have the option to enter

TUBERCULOSIS DISPENSARIES IN LONDON, DECEMBER 31, 1912

District	*Address*	*Date of Opening*	*Population*	*Annual Deaths from Pulmonary Tuberculosis*	*Estimated Number of Infected Persons Living*	*Number of Persons Examined*	*Definitely Tuberculous*	*Under Observation*	*Non-Tuberculous*
Paddington and Kensington	20 Talbot Road, W.	Jan. 7, 1909	337,639	270	2,700	5,981	2,229	1,707	2,045
St. Marylebone	15 Allsop Place, N. W.	Nov. 22, 1910	125,195	137	1,370	1,243	782	159	302
Stepney Dispensaries									
a. Stepney	10 Arbour Square, E.	May 15, 1911	314,379	410	4,100	1,906	736	381	789
b. Whitechapel	18 Gt. Prescott St., E.	July 1, 1912				1,053	491	241	21
c. St. Georges in the East	208 High St., Shadwell, E.	July 1, 1912				654	231	179	244
Bermondsey	62 Riley St., S. E.	June 15, 1911	127,238	223	2,230	1,409	676	155	578
Woolwich	Maxcy Road, Plumstead	Oct. 6, 1911	135,422	136	1,360	2,519	1,095	450	974
Fulham	632 Fulham Road, S. W.	Nov. 1, 1911	181,282	170	1,700	1,901	841	611	449
Battersea	179 Battersea Bridge Road, S. W.	Nov. 6, 1911	188,222	194	1,940	784	220	100	404
Camberwell	19 Brunswick Square, Camberwell	Oct. 1912	286,058	309	3,090				
Poplar	135 Bow Road, E.	Apr. 22, 1912	172,432	234	2,340	589	291	44	113
Deptford*	Public Health Dept., Deptford	Nov. 1912	199,642	142	1,420				
Finsbury†	St. John St., Finsbury	June 29, 1912	94.578	160	1,600	60	54		6
Hampstead*	Public Health Dept., Hampstead	Jan. 1913	95.729	56	560				
		Totals		2,441	24,410	18,099.	7,646	4,027	5,925

*Municipal Dispensaries.
†Carried on by General Practitioners.

special hospitals. All necessitous patients are referred to charitable agencies for relief. In every department of its activity the dispensary works in close association with the Public Health Department.

GENERAL ADOPTION OF THE DISPENSARY SYSTEM

The above represents the ideal of the Coordinated System as it exists to-day in the city of Edinburgh, where all the factors are working in harmonious interdependence. While not claiming the result as direct cause and effect, this great activity has undoubtedly some reflection in the reduction of 46.4 per cent. in the Edinburgh mortality during the decade 1901-1910 according to the Registrar-General's report. The sound basis of this system has received a recent endorsement in the Report of the Treasury Departmental Committee on Tuberculosis to His Majesty's Government. In the scheme advised for adoption throughout the United Kingdom the value of coördination between the various institutions has been fully realized. Again, the British Science Guild, an independent scientific body, concluded a Report on Tuberculosis, signed by Sir Norman Lockyer and Sir Lauder Brunton a few months ago, with the following significant statement:

"Improved sanitary conditions and better housing will contribute toward the diminution of tuberculosis. On the other hand, a direct attack on the disease is necessary, and we are of opinion that in the different units enumerated in the above, whether founded by voluntary effort, insurance committees or Borough or County Councils, provided always that their work be coördinated as indicated on the lines of the Edinburgh System, and welded into one comprehensive scheme, there is sufficient machinery for the total abolition of tuberculosis in this kingdom."

While the general adoption of this System in Great Britain and Ireland is of comparatively recent date, its utility was earlier recognized on two continents abroad. For some time past its principles have been in operation in the great transatlantic cities of New York, Boston, and Pittsburgh, on the continent of Europe in Germany, Austria, Italy, and Holland, and in the British colonies of Canada, Australia, and South Africa.

THE PROBLEM IN LONDON

The population of London in 1910, the latest year for which figures are available at the moment of writing, is given as 4,520,759 (73rd Annual Report of the Registrar-General, p. XII). During that year the deaths from tuberculosis were as follows (*ibid.* p. 314 and 315):

DEATHS IN LONDON FROM TUBERCULOSIS IN 1910

	MALES	FEMALES	TOTAL
Pulmonary Tuberculosis	2,545	1,425	3,970
Phthisis (not otherwise defined)	899	662	1,561
Tuberculous Meningitis	428	383	811
Tuberculous Peritonitis	186	163	349
Tabes Mesenterica	31	21	52
Lupus	4	5	9
Tubercle of other organs	184	111	295
General Tuberculosis	220	190	410
Scrofula	1	1	2
Totals	4,498	2,961	7,459

Accepting this table with the reservation that a proportion of deaths certified as pneumonia, bronchitis, and pleurisy might well be added to it, we find that of 7,459 deaths from all forms of tuberculosis, 5,531 were due to pulmonary tuberculosis. This means that in any one year there are at a low estimate 15,000 patients suffering from pulmonary tuberculosis requiring active treatment, with another 50,000 infected persons who demand medical and sanitary supervision.

PROVISION FOR CONSUMPTIVE PATIENTS IN LONDON

In a statement of general policy rather than of detail, it is only possible to consider generally the existing machinery for dealing with London's 15,000 cases of pulmonary tuberculosis. This includes beds at the chest hospitals and their sanatoriums in the country, treatment at their out-patient departments, and at the out-patient departments of the large general hospitals, treatment at general dispensaries, beds in hospitals for advanced cases, beds in sanatoriums engaged or maintained by voluntary agencies, such as the Charity Organization Society and the Invalid Children's Aid Association or in some instances by public health authorities. Further we must include the preventive measures adopted by these last in the different boroughs of London, and beds in poor law infirmaries and allied institutions. The recent National Insurance Act is providing beds at various sanatoriums for insured persons in a curable stage of the disease, but this does not apply to more than one-fourth of the tuberculous poor.

The following is an approximate statement of the number of beds in hospitals for consumption and diseases of the chest available for the tuberculous poor of London:

NAME	BEDS
Brompton Hospital for Consumption	318
Frimley Sanatorium	108
City Road Hospital	80
Friedenheim Hospital	48
Home for Consumptive Females	23
Hospital of St. John and Elizabeth	17
Mount Vernon Hospital	140
Northwood Sanatorium	100
St. Joseph's Hospital	48
St. Luke's Home	28
St. Peter's Home	12
Victoria Park Hospital	164
Hospital Treatment—Total	1,086

It would be a gross impertinence to attempt to do justice in the scope of an article such as this to the great work done by the London hospitals for diseases of the chest. In her voluntary hospitals this country has a just and ancient pride, since they represent a bright heritage handed down to us by the Catholic Church in the Middle Ages. Not only in their wards but at their out patient departments, thousands of patients are treated every year by an honorary consulting staff. Over and above the advice and treatment of distinguished medical and surgical authorities, the patients have a call on the entire resources of a great hospital, its bacteriological, X-ray, ear, nose, and throat, and other special departments The tuberculosis patient attending the out-door clinics of the large teaching hospitals associated with medical schools, has the same facilities.

WHERE THE MACHINERY FAILS

If this high service were available for every consumptive in London, if every suitable case had immediate access to a sanatorium, and if all the advanced cases were to be segregated in special hospitals, we should be little nearer the ultimate eradication of tuberculosis. This for many reasons, of which I may indicate a few, if for no other reason than that the problem of London applies to day to many American cities. It is general experience that the consumptive patient seldom seeks advice of his own accord until the disease is so far advanced as to make permanent arrest doubtful in at least fifty per cent. of cases. There is only one way to obtain the early cases at a stage when with certainty over ninety per cent. can have the disease arrested, and that is for a tuberculosis expert to visit the homes of the people. Another factor enters here. If all the cases in a given area were detected, it would be found that only some twenty per cent. required actual treatment in a sanatorium, and that the great majority would yield to treatment in their own homes without interfering with their occupations. Suppose all the early cases who seek treatment of their own accord are sent to sanatoriums, two factors in the causation of tuberculosis remain untouched. The earlier cases continue gradually to approach the stage at which sanatorium treatment is imperative, and the patient returning from the sanatorium returns to the same conditions of life under which he broke down. Since the breeding ground of tuberculosis is in the ill ventilated, overcrowded, one, two and three roomed homes of the gargantuan tenements in our great cities, it follows that treatment alone is not sufficient, unless the principles of hygiene be brought by experts into the homes of the people. Again, if all the advanced cases were to be segregated, permanently detained in an institution, or in plain English imprisoned (and where compulsion has been tried it has failed), there would still remain the legion of infected persons in early life marching under unhygienic conditions to open, declared, and incurable disease. The point submitted is that on the side of treatment alone, the subject of tuberculosis demands special machinery.

PUBLIC HEALTH MEASURES

On the side of prophylactic medicine the public health authorities of the London boroughs, with the Local Government Board of England behind them, have set in action very comprehensive measures. There is compulsory notification of pulmonary tuberculosis, whether occurring in private or in institutional practice. Further, by the time this is in print, there will be compulsory notification of all other forms of tuberculosis. Following on this, the medical officers of health disinfect on request the house of any consumptive either on the death or removal of a patient, or irrespective of this if the case be deemed highly infectious. The health authorities also provide sanitary inspectors and health visitors to visit and advise the family of any notified case as to precautions against infecting others, and on the elements of general hygiene, except in such cases where the Medical Officer of Health is satisfied that this has already been done. On the larger question of sanitation the condemning of insanitary property under the Public Health Acts makes slow but certain progress.

In relation to the abolition of tuberculosis these measures are in themselves inadequate. It will be generally admitted that in the matter of educating the people to a knowledge of open air treatment, the visit of a specially trained physician and nurse is likely to be more efficacious than the visit of a sanitary inspector or health visitor not so trained.

Further by a serious defect in the law, it is impossible for the public health authority to treat medically and continuously bed patients in their own homes. The consumptive no longer able, owing to a pleurisy, hemoptysis, or other incidental exacerbation of the disease, to attend at an institution, in some instances a great distance away, is best off when he can have treatment from a specialist in his own home. Again, while the sanitary authority applies appropriate measures to notified cases, it is clear that if all cases are to be notified the special machinery of detection already indicated must be applied.

THE CENTRAL FUND

It was a full recognition of the gaps to be filled in the outworks against tuberculosis in London which led to the formation in 1910 of the Central Fund for the Promotion of the Dispensary System for the Prevention of Consumption in London. Up to the year 1909, when the Paddington Dispensary was established, there were no tuberculosis dispensaries in London. The aim of the Central Fund was to establish or assist in the establishment of a tuberculosis dispensary in each of the boroughs of London. The plan adopted was to secure simple premises, and the services of a doctor and nurse who would devote their whole time to the work. As the work developed it was found necessary greatly to increase this staff. Hours of attendance are arranged to suit the convenience of the working classes, to whom advice, treatment, and medicine are given free. All patients, however, are rejected if on inquiry it appears that they are able to pay for medical attendance, or if they are already under medical treatment, in which case they are only accepted after the written consent of their own doctor has been obtained. In every respect these dispensaries follow the lines of the Edinburgh system as already described.

The very large measure of success which has attended the efforts of the Central Fund has been due mostly to the interest and energy of a lady—Miss Edith M'Gaw, with the Right Hon. Lord Glenconner as Chairman, and Sir Alexander Henderson, Bart. as Hon. Treasurer, the Fund received most influential support, and a sum of £40,000 ($200,000) was rapidly subscribed, of which £20,000 ($100,000) was the gift of the Hon. Treasurer. To the dispensaries in the various boroughs grants are made by the Central Fund, these varying from three quarters of the initial expenditure and three quarters of the annual expenditure in the case of poor boroughs, such as Stepney, to a minimum of £200 in one year in a comparatively rich district, such as St. Marylebone. In every case a local committee, including the Medical Officer of Health, either as chairman or ordinary member, looks after all matters connected with the local dispensary. The rapid extension of the dispensary system all over London may be seen from the preceding table for the year ending December 31, 1912. It should be stated that each of these dispensaries publishes an annual report.

ADMINISTRATIVE COÖRDINATION

The aim of the Dispensary System being that no case of tuberculosis should be uncared for, it is essential that the work of the agencies engaged in controlling tuberculosis should be correlated and coördinated. As between the dispensaries receiving grants from the Central Fund this has already been attained, each dispensary being in close touch with the others, and patients being frequently transferred from one area to another. The National Insurance Act will provide sanatorium treatment for suitable cases of pulmonary tuberculosis amongst insured workers, but for the great majority of the consumptive poor in this city the crying need is for more sanatorium beds, and for beds in hospitals for advanced cases. This last is imperative. At my own dispensary I found that the death rate from tuberculous meningitis and tabes mesenterica among the families of cases in Stage III with tubercle bacilli in the sputum worked out for one year at the staggering figure of 48 per 1000, as against the normal death rate from these diseases of 1.3 per 1000. It is the duty of every health authority in London to make proper provision for these advanced cases. This is not a matter which can be tackled by private enterprise. If an advanced consumptive enters an institution in the interest of his children and family, it is the duty of his fellow citizens to make adequate provision for him. Under no possible casuistry is it possible to argue that he should go under the Poor Law. The medical officers of health are the central administrative authorities in each borough in London. To them is open the statesmanlike action of coördinating all the existing machinery, voluntary and municipal, into one comprehensive harmonious scheme. To no one agency can the solution of the tuberculosis problem be delegated. If the statistician alone attempts to deal with it, he comes under the burning satire of H. G. Wells: "Those who sit in offices (I quote from memory) dealing with sin, shame, and misery in hundreds of tables—but all in manageable percentages." Again, if the clinical expert be out of touch with the wide administrative achievements of sanitary science he is "as a pelican in the wilderness." In three short years voluntary effort has carried out a gigantic scheme for London. An expeditionary force working from a base of thirteen dispensaries is holding the common enemy in check where the death rate is highest—in the beleaguered homes of the people. Reinforcements are badly wanted—the guns of the sanitary law without fear or favor to be trained against miserable hovels, the hospital at the base for advanced cases to be established, more field ambulances to remove the wounded to sanatoriums in the country, and more red cross workers to render first aid to the injured. If all these be available, then the general advance may begin, and the end will be in sight. In a noble line quoted by Sir Robert Philip, "L'avenir est pour les audacieux."

EMPYEMA, OSTEO-ARTHROPATHY, AND ICHTHYOSIS IN THE SAME PATIENT AND AN ADDITIONAL PATIENT WITH ICHTHYOSIS

By Samuel E. Earp, M.S., M.D.
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Clinical Professor of Medicine, Indiana University School of Medicine

Synopsis of a bedside clinic before a section of the Senior class, held at the Indianapolis City Hospital, February 4, 1913.

This white boy, who gives his age as 14, furnishes a history with many shortcomings. Mother and father dead, the latter from gas-asphyxiation. One sister living. All else negative. He has had mumps, otherwise he does not call to mind any sickness until July, 1912, at which time he says he had a severe headache, fever, hard breathing, dizzy spells, and pain in the region, to which he points with his index finger, which is an inch below the left nipple, and another point in the midaxillary line. Further, he says that he was removed to the Wabash Hospital; a portion of two ribs, removed from the left side, to make an opening, from which a yellow fluid was taken, which the doctor called pus.

He was admitted to the Indianapolis City Hospital September 25, 1912, and was under the care of Dr. Oliver and later under Dr. Ford. At this time we note that he is well developed and perhaps the movement of the left chest is somewhat diminished. There is a granulating wound in the seventh intercostal space, midaxilla, which confirms his statement. This cavity has been irrigated daily by Dr. Miller. The improvement is marked and the boy has been confined to his bed only a portion of the time. The heart and chest sounds are normal with the exception of a dulness upon percussion at the lower portion of the left lung, a slight friction sound in the left midaxillary line, and some crepitation at times upon deep inspiration, which may be atelectasis or possibly the formative adhesions may be responsible.

CASE 1, FIG. 1

From the information thus obtained it is fair to presume that the lesion was one of suppurative pleuritis. We are here reminded of blood metastasis and often empyema as a second to the infectious diseases, but is is also true that the effusion of pleurisy may become purulent either before or after aspiration. Dead bone, injuries, or a cavity of the lung may provide an opening. So far as the clinical manifestations are concerned it might be well to refresh our memory concerning pleurisy with effusion and not omit the picture of a septic infection.

The physical signs approach those of pleurisy with effusion, and it may be necessary to reply upon the needle, or perhaps Baccelli's sign may be of service. If pulsation leads us to suspect aneurysm of the thoracic aorta we should bear in mind the different cause or locality and the absence of the characteristic aneurysmal signs. Since in children, and especially when there has been surgical intervention we expect better results which will apply to this patient. There will be the condition known as *pleuritis retrahens.* Adhesions take part in the cure, there is some retraction of the affected side and the cavity may be obliterated.

Relative to the treatment, it may be said that the course in this case has proved entirely proper and should be followed in every case. Just at this juncture I desire to call attention to a method for aspiration which possesses merit. Davis, in the *Lancet* for December 28, 1912, suggests a means to avoid the usual danger of aspiration of the pleural fluid. After local anesthesia a canula is introduced into the eighth intercostal space and a needle in the fifth space. Through the upper oxygen is passed and the lower connected with the aspiration bottle. When there is cough and pain aspiration is stopped and 100 c.c. of oxygen is passed in. When these symptoms again appear the same process is followed until there is no more fluid in chest. Smallest amount of pain is experienced, and if the X-ray is needed for further examination it can be used at once, which is not true with the old method. The endothoracic pressure is reduced gradually by rapid absorption of the oxygen and frequently adhesions are broken up with little discomfort, and on the whole untoward results are less likely to occur.

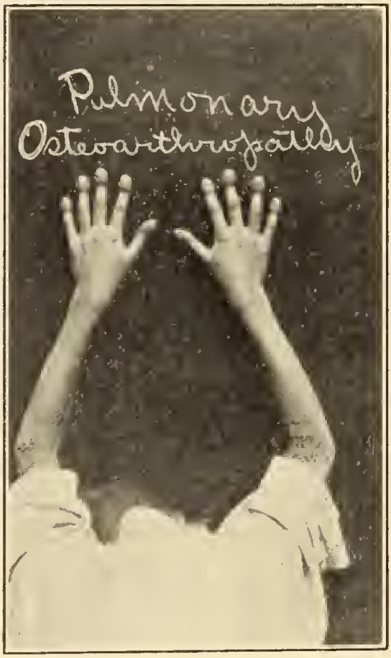
The fingers of this patient are osteoarthropic and commonly known as drumstick or empyemic fingers. In this patient the same condition is shown in the toes. There is hypertrophy of the soft parts and the enlargement is symmetrical. Sometimes there are bone changes, and when in the distal ends of the long bones, the formation underlies the periosteum. The common causes are bronchiectasis, chronic tuberculosis, empyema and chronic disease of the liver and heart and there are other causes. Beattie and Dixon assert that an analogous condition may be found in congenital diseases of the heart, especially pulmonary stenosis and incomplete development of the interventricular septum.

In an affection such as we find in this patient the development is slow, but there are exceptional cases, and in such the process may disappear when treatment is followed, as we hope for in the case of this patient. Musser and Kelly call attention to the modified hypothesis of Marie, which is generally accepted—that toxins absorbed from the lung, liver, suppurating growths, or the like act as irritants to the periosteum, and cause proliferation and ossification. This condition, minutely described by Paul Marie in 1890, still bears the name suggested by him *osteo-arthropathic hypertrophiante pneumonique*.

The peculiar appearance of the skin sustains no relationship to empyema, but on the contrary occupies an entirely independent position as a disease, and I will briefly comment upon your bedside findings.

The major portion of the body shows not only a dry and harsh skin, but particularly noticeable are the large and thick scales, especially prominent on the arms and legs, so much so that on the latter we have the typical alligator skin resemblance. On the chest, abdomen and back the scales are not so thick, but are larger and, as is not frequently the case, the face is rough and dry and shows the characteristic lines, but they are very much modified. The scalp also takes part in the process. The cracked or plate margin lines are universal and are quite deep upon the elbows and knees, which is shown when these parts are flexed, and when reversed in position the appearance in these localities might be likened to the bark upon a tree.

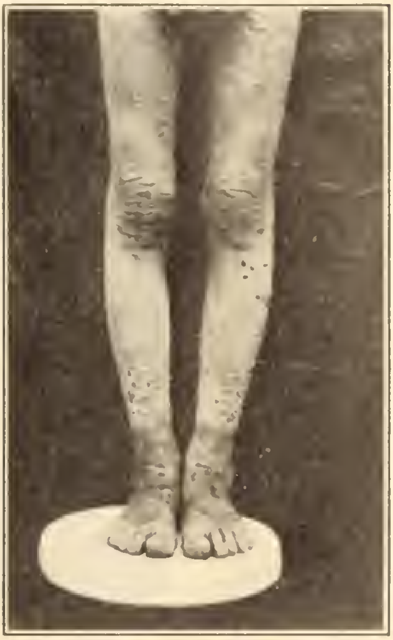
The absence of inflammatory action, the dry scaliness, and furaciousness serve to distinguish it from psoriasis and eczema. Pityriasis simplex, says Fox, is the only affection to which it bears any resemblance, but in pityriasis the skin is not so generally affected, there is hyperemia beneath the scales, and these are constantly falling off, or are easily rubbed off, while in ichthyosis there is no hyperemia, and the scales remain upon the skin. A point of no little importance, is, that it is congenital, although it may not make its appearance until the first or second year of life. It is often progressive and most pronounced in the adult, and this case is unusually severe in its manifestations, although a boy only 14 years of age.



CASE 1, FIG. 2

While there is defective nutrition of the sweat and sebaceous glands at the onset degenerative changes follow and seemingly this is the brief pathology. A patient in whom the glands are capable of functionating fares better in summer than in winter, and in mild cases the appearance gives encouragement to a betterment of the condition, however, it is a chronic disease for which there is no cure. The patient may not feel any particular discomfort if proper attention is given his condition, but otherwise the parts are sensitive and the fissures, as in this case, would soon break down, resulting in a sore. Thus we have presented a case of ichthyosis.

There are two forms, ichthyosis simplex and ichthyosis hystrix, the latter indicating a severe variety, in which there is warty or spinus horny patches, and Schamberg is authority for the statement that some of these cases are unrelated to true ichthyosis and should be grouped with nevi and papillomata. This case is a sufficiently pronounced one to be considered a severe one, of the former type, but a near approach to the other. So far as cure is concerned the prognosis is unfavorable, but the process may be kept in abeyance by topical applications. Constitutional remedies are powerless. The frequent use of baths to which has been added several ounces of bicarbonate of sodium will suffice. Several hours previously some oleaginous preparation may be used—sulphur, green soap and salicylic acid are agents used with a base of glycerine, lard, lanolin, or cocoanut oil.


Case 1, Fig. 3

Stelwagon and Schamberg both mention iodide of potassium and suggest

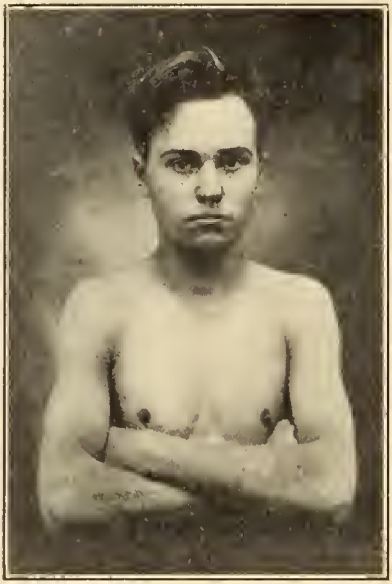
Potassii iodidi	2.
Glycerinæ	4.
Adipis benz.	
Ol bubuli	16.

M. ft. ung.

Una advised frequent application of sulphur ointment and frequent bathing. Good results may remain many months after active treatment has stopped. In ichthyosis hystrix caustics, cautery or the knife may be necessary.

The second patient is E. E., male, age 16. Some one in the past has made a provisional diagnosis of aneurysm of the abdominal aorta and mitral regurgitation. Your physical examination furnishes the opinion that the heart and blood vessels show no organic lesion, in this I will concur. Let us see whether the nerve centers controlling certain organic functions may have been responsible for certain manifestations which are outlined.

Family history negative. His past history has some of these points to consider. Shortness of breath, dizziness at times, lasts but a few minutes, calls them attacks, and then pain in precordial region, occasionally chilly sensation at such times, has constipation, gas on stomach (so expressed by him), says he worries, at times broods over unimportant things, has tremors, palpitation, throbbing of large blood vessels in chest and abdomen; now with these we cannot help but think of such conditions as neuroses of the heart, stomach and other organs, and I should have called to mind in this summation a motor phenomena of which he speaks, the twitching of some of the muscles of the face at times. Yesterday the nurse saw this symptom and in addition a chill, nervous symptoms, which were extreme, in which the circulation was slowed, then accelerated, and yet he soon reached a normal state. He states that the anxiety for his mother and the cold air from the open window had something to do with it, and we must consider that his nature is an emotional one in the extremest sense. Here we have then a fair picture of neurasthenia, considering that your examination gives a negative to the other alleged conditions. But it was not for this I desired you to see the patient so much as for the condition of the skin, and the carefulness with which the last patient was studied make a good stepping-stone for this one.



CASE 2, FIG. 1

You notice the scales are not so large and thick as in the first case of ichthyosis They are lighter in color except in the region of knee, elbow and shoulder. The scalp and face are clear. Former comment will also apply to this, which is a case of ichthyosis simplex.

SOME SURGICAL MARVELS[*]

By Joseph B. Bissell, M.D.
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While entirely praiseworthy in its original motives, the new publicity campaign which has been inaugurated to instruct the lay mind in the early symptoms of disease has one serious disadvantage. As a result of the early diagnosis and consequent favorable termination of hitherto fatal disease, the public, or that portion of it which gets its medical education from the newspapers, is being instructed to look for miraculous cures. This is unfortunate. Lured on by elusive journalistic descriptions of quick and sure cures the disappointment which is sure to follow when it becomes apparent that many of these illnesses are still incapable of cure will tend to react seriously against the ability of the medical man, and especially of the surgeon, to carry out satisfactory treatment, and will eventually do harm to the general public, as well as retard scientific surgery. Imperative or operative treatment will be postponed or refused and resort most likely be had to quacks and other advertising specialists, seriously handicapping subsequent proper treatment by the delay and probable misdirected attempts to relieve or alter morbid processes. The earlier we discover the presence of disease the better are the chances of recovery under suitable handling. In this campaign of instruction the idea of the profession is to get the public to recognize early and immediately report to their medical adviser any evidence of change of the normal structures, tissues or functions of the human body before malignant or incurable alteration takes place But instead of obtaining these observations and such other information as we need daily in the public press, new and astounding operations and wonderful remedies are described, teaching the people to expect miraculous and permanent restorations to health, when the actual facts obtained later, but not published, show these successes to be in almost every case failures. It is needless to say that most of these phenomenal operations are fakes pure and simple, or conservatively speaking, the effusions of over enthusiastic surgeons assisted by their too zealous newspaper friends.

In the morning newspapers of a few days ago was a full technical description of the operation of making a new humerus of a boy whose arm had been destroyed in an accident, with the story of the latter. The name and address of the operating surgeon and the hospital to which he is attached were published, as well as the names and addresses of his assistants, the patient, and the patient's family. The operation consisted of inserting the bone of a rabbit's leg in place of the destroyed arm bone. The newspaper statement was to the effect that the operation was successful, although the grafting process only took place on the day preceding the publication of the article. The absurdity of such an assertion is self evident, even to the casual reader. All the scientific knowledge we have acquired about the transplantation of bone structures teaches us that it is impossible to grow the bone of an animal in a human creature, and it also teaches the impracticability of transplanting a bone or parts of a bone from one human being to another with favorable results, or in other words, we must use bone from the person on whom we are operating in order to make bone graft grow and form a bridge between bone fragments. In the case mentioned a piece of railroad iron would have been just as valuable and have accomplished as much good for the patient as did the rabbit's leg. It is to be regretted that reputable newspapers constantly circulate, seemingly with authority, these ridiculous statements of operative misinformation. Not only are they silly, but they may do actual harm when a disillusioned public realizes the inevitable failures of these widely heralded surgical frauds, and many a patient may be deprived thereby of his rightful chance of a cure. There are miracles enough in the undisputed facts of modern surgical knowledge without going into the fields of romance. The wonderful results accomplished by the research workers of the laboratories when put to practical use obviously demonstrate the remarkable advances in surgical achievement. The multitudinous recoveries from a well known widely spread hideous and terrible disease following the use of one of the German laboratory products tell a more vital and striking story than any of the fairy tales of cures so common in the daily prints, and a story, moreover, that has the additional merit of truth.

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[*] Read before the Society of the Alumni of the City Hospital, December 18, 1912.

The Surgeon General reports as a matter of statistics that in the navy of a great world power since the adoption by the medical department a year ago of the prophylaxis of vaccination not a single case of typhoid has occurred. Is not this a marvelous thing? Yet no startling headlines called the fact to the attention of the public, although it is of great scientific importance and well worthy of popular note.

A few years ago the following case would have been considered extraordinary in its success; now it is only one of many in surgical experience.

R. C. S., an infant 12 weeks old, was seen by me July 8, 1908. A few days before an abscess had begun on his chin. This had been preceded by an attack of enteritis, which had lasted several days, but had then ceased. Following the first abscess, the baby had developed a number of large and small abscesses in various parts of the body. They all appeared to be deep seated and to originate under the periosteum. The cultures first taken showed staphylococci, later in the course of the case the microbes were all of the short variety of streptoccoci. The infection was most marked at the upper and lower ends and inner surface of the right tibia, although deep seated in the calf were one or two abscesses, which probably originated from the posterior surface of the bone. The fibula seemed to be very slightly affected at any time during the whole course of the illness. On September 25th, during a dressing, the entire tibia, from the ephyphisis above to that below, was incidentally removed from the diseased leg. The knee and ankle joint were both involved in the infection. The leg was riddled with sinuses and at the same time a number of abscesses were being treated in various parts of the baby's anatomy. At one time the condition of the leg was so bad and the child's exhaustion so marked that amputation to save his life was considered —but refused. A molded plaster of paris splint encircling the foot up to and above the thigh supported the leg, preventing deformity and possible injury to the fibula, and allowing of the various necessary dressings. An X-ray taken on November 25th, two months after the removal of the bone, showed the outline of a new tibia extending from joint to joint. The bone could also be distinctly felt with the finger. The sinuses and abscesses about the leg healed very rapidly, and by December 25th, aside from scars and one sinus at the lower epiphyseal junction the limb was quite normal in appearance. A skiagraph taken at this date showed a satisfactory tibia and fibia in proper position. The baby had a hard time of it with repeated infections, but had resistance enough to overcome them. He had abscesses all over his body for several years. They were opened and drained, and usually healed quickly and kindly. The periosteum of the skull was a favorite site for their origin, as was also that of the scapula and sternum. The last abscess was in August, 1911. It originated under the periosteum of the left patella, and healed quite rapidly within a few days after it was opened. Seen by me within the last few weeks the child is the picture of health, normal and robust in every respect excepting for the scars he bears and about a quarter inch shortening of the affected leg.

This patient had the best possible opportunity of treatment, and was able to command every possible means to his recovery which money or attention could provide. He is now about four and a half years old and practically since the beginning of his illness has never passed a night in a bedroom or indoors. His waking and sleeping hours are all spent in the open air. During the acute period of pus infection an autogenous vaccine was made and injections repeatedly given. There is of course no means of knowing what effect this had on his ultimate recovery. Naturally every use was made of our knowledge of the opsonic index, antibodies, vaccines, and the laws of resistance and immunity taught us by the most recent laboratory investigations. Certainly without such knowledge the question of amputation of the leg to save the life of the child would have been a more acute and serious matter than the result seems to have proved.

In a different field, but yet along practically the same lines the laboratory work of the German physiologists, pathologists and chemists, with their striking results has been of great assistance in restoring diseased tissues to normal condition. Professor Erlich's laboratory researches and findings have been of tremendous value in the ordinary everyday surgical work. The use of neosalvarsan, together with our knowledge of the complement, fixation reaction, as a control test has in many cases produced some marvelous results. Some of these are illustrated in the following cases:

No. 1. Madame V. consulted me March 22, 1911, with the following history. She is 32 years of age and has been ill for five years. She is married, but has been separated from her husband for the past four years. Has been twice pregnant. Two miscarriages. She lost weight rather rapidly for the last year and a half. She was extremely pale, had pulse of 110, slight elevation of temperature every afternoon, complained of pain in the rectum and left pelvic region, which began intermittently about eighteen months previous, but which was then pretty constant and at times very severe. On this account, and because of the difficulty of defecation she was unable to take nourishment except in very small quantities, and for the most part in fluid form. For the past few months she had a muco bloody discharge from the rectum. Except for small particles, which were expelled from time to time with great pain, she was unable to have any movement of the bowels. She had been treated for cancer of the rectum by different specialists in this country and abroad, and complete excision had been advised. She was on her way to a hospital in a western city for operation, when she was sent to me by another physician for final opinion. Digital examination of the rectum caused a great deal of pain and disclosed about four inches above the anal opening a thick hard mass of tissue filling the caliber of the gut except for a small hole in the center through which only the thin end of an ordinary probe could be inserted. The examination was exceedingly painful, and most difficult both for the patient and for the surgeon. No glands were felt in either groin, but in the left lower quadrant and extending down into the pelvis was a large irregular mass, oblong in shape, about four and a half by eight inches in dimensions, tender to pressure, and rising to the level of the umbilical line. Fearing that the lesion was cancer, but hoping that it might be specific, her blood was taken for a Wassermann test. Persistent questioning into her history revealed the fact that her husband, whom she had not seen in several years, had been treated for some blood condition of long duration, and she further remembered that within a few months after her marriage she had an abscess in the groin which had been opened by a surgeon. This was not a very satisfactory history, but within a few days the Wassermann report was returned as positive. An intramuscular salvarsan injection was given, followed by mixed treatment by mouth. The patient was taken to a sanitarium in order to be under the best possible conditions to relieve her emaciation and difficulty of defecation, and for the purpose of properly nourishing her as well as for the mechanical treatment of her stricture. The result of the treatment was not only remarkable, it was astounding. On the third day a small rectal bougie was passed through the stricture with considerable difficulty and each third day following larger and larger sizes were used and the stricture gradually dilated, until at the end of two weeks a rubber tube the size of a twenty-six French sound was passed into the sigmoid cavity and that portion of the gut washed out. By means of this washing and the movements of the bowels which had been slowly induced by mild cathartics and massage the large tumor in the pelvic region had satisfactorily disappeared, showing that it had been nothing but fecal impaction above the almost completely occluded rectum.

Early in May she was given another injection, intravenous this time. From that period on her gain was steady, and at the end of three months from the first injection her weight had increased thirty pounds. Her hemoglobin had increased from 37 per cent. to 81 per cent. and her red blood cells from twelve hundred thousand to nearly four millions. Appetite had returned, she had well formed bowel movements, and the mucopurulent discharge had ceased. The patient went to Europe late in August having stopped treatment a few weeks before of her own wish. While in Paris, in September, multiple syphilitic rupial ulcers developed, which were so extensive as to threaten her life. She was taken to a cure in Austria where active antisyphilitic treatment was given by means of baths, unctions and mouth medication, but no further injections of salvarsan or neosalvarsan. In the early spring of 1912 she returned here and is still under treatment and observation. Except for the pronounced rupial cicatrices extensively distributed over her skin her condition is quite satisfactory. There has not been at any time further trouble with the stricture. I regard her as a remarkable illustration of the value of salvarsan.

Another demonstration of recovery, or at least of the removal of all evidences of troublesome symptoms, rapidly, and to the great relief of the patient, is detailed briefly as follows:

Captain J. C., naval officer, 48 years old, consulted me about a month ago for an inflamed and discharging tumor involving his right shin, and a large and painful swelling at the upper end of his lower right arm. Examination of the leg showed a tumor several inches long connected with the left tibia. It was swollen, tender, and painful, and toward its center were two sinuses leading into the bone and discharging considerable pus. The pain was much worse at night and the tumor had increased rapidly in the past few weeks. The swelling on the right arm was about half the size of an ordinary navel orange. It involved the upper third of the ulnar, was not inflamed, slightly tender, and was troublesome principally from its size and position. He gave a very definite history of initial lesion and secondaries twenty years ago. There had been no symptoms since that time until the swelling of the tibia about three months before. The osteomyletis of the tibia was treated by an operation under general anesthesia, during which as much as possible of the affected portion of the bone was removed by incision and curretage with the bone chisel and bone scoop. About two-fifths of the tibia was removed. The cavity remaining after this very thorough operation was extensive. It required a large quantity of iodoform gauze to fill it. The gauze packing was left in place for a week. The day following the operation he was given an intravenous injection of salvarsan, and ten days later a second injection. The diminution in size of the tumor in the arm began almost immediately, and was quite perceptible after 48 hours. Now at the end of three weeks, after the second injection, the tumor is almost on a level with the surrounding tissues, and only a slight elevation and irregular outline mark its former position. The enormous cavity in the tibia has almost completely filled in. The periosteal pains ceased in the first 24 hours, following the first injection, and have not returned. The patient is about his usual occupation and aside from a dressing over the rapidly healing tibial ulcer, is in a quite normal condition. This reads like fiction, but is nevertheless a fact. It is a sample of one of the not unusual antisyphilitic therapy.

One more case, in which an untoward event very nearly occurred, may be of interest. It was during the early period of our knowledge of salvarsan, when we were not quite so familiar with its use as we are at present. The patient was a husky Greek laborer, 28 years old, who had what appeared to be a mixed sore; that is, he had an ulcerated lesion of considerable extent with profuse discharge and a well marked induration. He had well developed secondaries in the shape of a typical macular eruption and widely distributed glandular enlargements. An intravenous injection of the usual amount of salvarsan was given in the usual manner without trouble or difficulty of any kind. Within a few minutes after the withdrawal of the needle he had a severe chill and vomiting. His chills were repeated for several days and his vomiting kept up for several weeks. At the time of the chill he complained of severe pain in the right hypochondriac and epigastric regions. The pain lasted for several days. His temperature and pulse soon became elevated, and the vomit the following day contained blood; he had also a severe bloody diarrhea. Nournishment was of course impossible, and the patient's condition became exceedingly serious. At this time, in the second week after the injection, he was a pitiable sight. One of his most striking symptoms was the extraordinary number of herpetic blebs covering his lips and face. He had as well, dry cracked tongue with sordes. His temperature at different times ran as high as 105 and 106 degrees. Several times death seemed to be impending from exhaustion and anorexia. He eventually recovered, but it was weeks before he was able to leave his bed and his stay in the hospital extended into months. He had a positive Wassermann before the use of the salvarsan, a double positive in the third week of his illness, and just before he left the hospital the report was negative; so that in spite of the danger and suffering he went through he was relieved of his syphilitic symptoms. Out of several hundred cases of treatment by salvarsan and neosalvarsan this is the only one where the effects were not satisfactory, and in this case the ultimate result was eminently so.

I offer for your attention these few selected cases as evidence of startling, almost astounding recoveries which sometimes occur in our ordinary daily work. Certainly such reports as these are more worthy of promulgation for the benefit and encouragement of suffering humanity than the publication of the rather foolish newspaper descriptions of surgical procedures, such as the one cited earlier in this paper and so common in print.

PHYSIOLOGY IN THE EARLY CHRISTIAN ERA

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Neglected through the centuries of accumulating and enduring truth, the history of physiology in the past decade has suddenly taken on a new and hitherto unknown interest. Although the much overworked platitude of "nothing new under the sun" cannot in this connection be brought to bear testimony for the physiology of yester-year, natheless an equally untrue but accepted aphorism may here with propriety be quoted.

"History," said Fuller, "maketh a young man to be old without either wrinkles or grey hairs; privileging him with the experience of age without either the infirmities or inconveniences thereof."

There can be little question, however, but that due mead of honor will always be given to the early physiological data brought to light by the savants and empiricists of two thousand years ago who, handicapped by want of precedents, obstructed by academic philosophy, and stultified by bizarre and priestly prejudices, were still able to offer observations and experiments that have since remained the keystone of the modern arch of systematic, experimental physiology.

It will both amuse and surprise us to realize that somewhere about fifty years before our era, there was a little group of physiologists and physicians known as Methodists. Unlike the followers of the two Wesleys of modern times, there was little religion even of a Greek type, evident in their contributions. Mingling Greek generalization with Roman barrenness of purpose, the protagonist of this body was one Themison of Laodicea. So few of their writings have escaped the religious vandalism and ephemeral wear of the ages, that it is barely certain that he flourished before Galen. In the fragments of his works, it may be gathered that Themison narrowly missed observing the circulation of the blood. He speaks of the "relaxation and tension of the blood." He methodically grouped all ailments under two physiological divisions, of "laxum" and "strictum," or high tension and low tension. Really it seems as if he only needed one of our recently devised blood pressure monometers to have discovered the ubiquitous malady of arterial hypertension. Themison was a great master, but like many modern leaders, he was the unlucky teacher of a weaver's son, by name Thessalos of Trallesin Lydia. The latter was a born charlatan, but undeniably as great a physiologist as his teacher. Hippocrates had preceded both Themison and Longfellow by singing "Art is long, life is fleeting," but Thessalos seems to have given out the hymn: "Ef you hain't got money, you needn't come around." He anticipated both modern psychology and physiology by sending walking delegates around by way of advertising that he would teach the whole of medicine and physiology in six months. He needed the money. He was a contemporary of Nero, and apparently in dedicating his astonishing writings to that monarch, was some fiddler himself. Dr. Osler, however, in speaking of Thessalos, said he taught medicine at the bedside, where his pupils accompanied him, and in this he was 1900 years ahead of his time. Thessalos really discovered that diet and a regular life were nature's sweet restorers, and he inveighed vehemently against the use of narcotics, drugs and cosmetics. He was the first physician who transferred and applied physiological knowledge in a practical way for the cure and prevention of disease. He discusses anabolism and katabolism almost in the way we know them. He also discusses the physiology of muscular movements and holds up the gladiators and charioteers with their regimes of abstinence and fasting, baths, exercises, hours of sleep.

There is more or less trustworthy evidence that both Cicero and Seneca were familiar with the current knowledge of physiology. L. Annaeus Seneca was a life-long invalid as well as student and his *De immatura morte*, which has not survived with his name, is said to discuss most analytically all the physiology of that day. Cicero in his *De natura decorum* also touches physiology with his brilliant literary wand.

Greater, however, than any of the named, was A. Cornelius Celsus, who as contemporary with Marcus Terentius Varro (117 to 26 B. C.), the erudite encyclopedist of the day, gathered together all the knowledge of the ancient world in a series of volumes the fragments of which are our greatest monuments of the ancient world. Celsus seems to have been more a physiologist than a physician, philosopher, or scribe. He was the scientist and experimenter *par excellence*. His judgments were conservative, but decisive, his experiments were original, and his conclusions were never announced except after personal observations of his own. He never practised medicine, but seems to have devoted his time strictly to writing and research. His works were the first books printed, yet they were unknown before 1478, when Pope Nicholas V discovered them.

Celsus is peculiarly pleasing as he scathingly dissects the speculative problems and isolates them from among the facts of the various dogmatic, empiric, and methodic schools. He emphasizes the distinction between anatomy and physiology, and advises that the knowledge of both may best be advanced by dissection and vivisection, but "human vivisection is objectionable," says he; which makes me a bit suspicious that some one not a stranger to him was not above human vivisection. *"Incidere autem vivorum corpore et crudele et supervacuum est: mortuorum discentibus necessarium"*

Celsus discusses the physiology of muscles and veins, and describes veins that impel air, veins that conduct water, veins that carry dark blood, and veins that transmit bright blood. Veins, mean arteries, capillaries and lymph channels, just as nerves mean fascia, tendons, nerves, and muscles. His knowledge of the urine, the perspiration, and hemorrhage, as well as the function of the lens in the eye was necessarily incomplete, but at least intelligible.

Even superior to Celsus in the lay mind rises at once the celebrated C. Plinius Secundus. Pliny was contemporaneous with our old iconoclastic friend Galen. It will be wise at this place to make a few awkward and kangaroo-like leaps across the lesser gentry of this period, such as Scribonius Largus, Pedanios Dioscurides, the vital or Hot Air School—the Pneumatists—the stoics, the eclectics. and the Sicilian Schools. Most of these were agreed in their physiology, to wit, that the fundamental constituents of the body are warm, cold, dry, and moist tissues and organs.

The supreme control of physiological phenomena is the function of the vital warmth which brings about reproduction and growth. Then it produces sensation, thought, and desire. Contraction of the thorax causes air to enter, and expansion expels it as impure. This end is also served by the perspiration, and the pulsations of the arteries through their branches in the skin the supply of air is brought in as the heart contracts and foul air is thus eliminated as the heart relaxes. Males arise from the right and warm side of the uterus, females from the left and cold side. Suffice it thus to bring us into intimacy with the time that evolved the dazzling minds of Pliny and Galen.

Galen was born in Corinth fifty-one years after the death of the Elder Pliny, who died in 79 of the present era. If Galen knew of Pliny's physiology, he says little of it in the forty odd tomes that have come down to us although researches show that he had written more than a hundred tomes. He wrote a monograph on the skeleton, in which he recommended that bones be seen and handled, not merely studied from books, and that the student should go to Alexandria, where teachers would place before him real human skeletons. It has been inferred that there was not, in his time, in Rome a single skeleton. He wrote fifteen books on anatomy, of which six are lacking; also an extensive treatise on the lesions of the human body, distributed among seventeen books which have come down to us. He is supposed to have introduced the term "symphysis," and he described nearly every bone in the human body. By him the muscles were no longer considered as inert masses and tissue layers serving to cover the bones, but he classified them according to their distinct functions, and studied separately their form and uses. The location of the vessels and nerves between them was also noted, and it was proved that muscles were indispensable to the accomplishment of voluntary motions. Galen was, perhaps, the first vivisector, since he exposed muscles of living animals, and showed how alternate tension and relaxation of distinct groups set the bones in motion, after the manner of levers; he named a great number of them, but, curiously, took no note of others. His classification according to their uses is followed down to the present day—that is, flexors, extensors and others.

The Hippocratic authors confounded the arteries with the veins. Praxagoras first distinguished two kinds of vessels which he supposed contained air, whence the name artery. Aristotle and Erasistratus maintained this view, which prevailed until the time of Galen, who devoted a book to the refutation of it, basing his argument upon the observation that always when an artery is wounded blood gushes out. How near he came to being the discoverer of the circulation may thus be seen. A little less reverence for authority and a little more capacity for observation, lack of which for so many centuries retarded the whole profession. He thought the veins originated from the liver—in this respect being behind Aristotle—but considered the heart as the common source of the arteries and veins. Even the portal system of veins confused him, and he erroneously described a superior and inferior aorta, but atoned for this by describing the umbilical veins and arteries. Aristotle had supposed all the nerves originated from the heart, but Galen stated that they are derived from the brain and spinal marrow, and pointed out two kinds of nerves: those of sensation, which he thought proceeded from the brain, and those of motion, which he considered to originate in the spinal marrow. Thus, he described distinct nerves of sensation and motion, but sadly confused their anatomy. He seems also to have had some notion of the great sympathetic, although it was by no means accurate. He suggested the division of the principal nerves, in order to prove the fact that nervous energy is transmitted from the encephalon to other parts of the body. He speaks of glands, and thought they discharged their secretions through veins into the various cavities, but regarded them rather as receptacles of excrementitious matter than as agents for secretion of valuable fluids. He even regarded the mammae as glandular bodies in this sense, although he knew, of course, the value of their secretion. To Galen we owe the division of the body into cranial, thoracic, and abdominal cavities, whose proper viscera and envelopes he described. He spoke of the heart as having the appearance of a muscle, but differing from it. He regarded it as the source of natural heat, and the seat of anger and of violent passions. He appreciated that inspiration is carried on by enlargement of the thoracic cavity. He thought that atmospheric air entered the cavity of the cranium through the cribriform plate of the ethmoid and passed out by the same route, carrying with it excrementitious humors from the brain, which were discharged into the nasal fossæ. But some portion of air thus entering remained, according to his views, and combined with the vital spirits in the anterior ventricles of the brain, from which combination originated the animal spirits and immediate agents of the rational soul. These acquired their last attenuation in the fourth ventricle, whence they would pass out drop by drop through a round, narrow tube.

SOME MODERN MEDICO-SOCIOLOGIC CONCEPTIONS OF THE ALCOHOL, VENEREAL DISEASES, AND TUBERCULOSIS PROBLEMS

Revised, enlarged and brought up to date by the author for publication in the AMERICAN PRACTITIONER

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PART II. VENEREAL DISEASES

(*Continued from the February Number of The American Practitioner*)

I have dwelt at some length on the first (the alcoholic) problem because it is in not a small degree responsible for the two following ones. We know that alcoholism very often leads to venereal excesses. The alcoholic loses judgment and moral restraint. Hence, we very often find that the young man contracts venereal disease during a debauch. Of the relation of alcohol to tuberculosis we will speak more fully later on.

Statistics regarding venereal diseases are as unreliable as those of alcoholism. We all know of the frequency of venereal affliction among every class of society, among men and women, and, alas, also among children. What are a few modern conceptions of the venereal problem of which we may speak? First of all, the sanitary control of this class of diseases by the official boards of health. We have started in New York recently to classify venereal diseases among the infectious, communicable, reportable, and preventable diseases. Here are the resolutions passed by the New York City Board of Health a few weeks ago:

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*Oration on Medicine delivered before the Annual Meeting of the Illinois State Medical Society, at Springfield, Ill., on May 23, 1912.

Part I. "ALCOHOL" appeared in the February number of the AMERICAN PRACTITIONER.

WHEREAS, The venereal diseases are infectious, communicable, and preventable, and constitute a serious menace to the public health, thus properly coming under the charge of the public health authorities, and

WHEREAS, It is well established that no administrative control of such diseases is possible without a system of notification and registration, associated with provision for the municipal care of patients unable or unwilling to place themselves under proper medical care and to take the precautions necessary to prevent the infection of others, be it therefore

Resolved, First, that on and after May 1, 1912, the superintendent or other officers in charge of all public institutions, such as hospitals, dispensaries, clinics, homes, asylums, charitable and correctional institutions, including all institutions which are supported in whole or in part by voluntary contributions, be required to report promptly the name, sex, age, nationality, race, marital state, and address of every patient under observation suffering from syphilis, in every stage, chancroid or gonorrheal infection of every kind (including gonorrheal arthritis), stating the name, character, stage, and duration of the infection, the date and source of the contraction of the infection if obtainable.

Continuing, the resolutions request all physicians to furnish similar information regarding private patients under their care, except that the name and address of the patient is not required. The Board of Health will undertake, without charge, to make the necessary bacteriologic examinations and tests for the diagnosis of these diseases, and to distribute the curative sera, but only on condition that the data required for the registration of the case be furnished by the physician treating the patient. The Department will also provide and distribute circulars of information in relation to these diseases.

This is a vast step in advance and will not only lessen the gonorrheal infections in infants and children, and the consequent blindness, but will also help in a measure, the control of this disease and of syphilis in adults, by timely diagnosis and judicious treatment. The disposition of the Health Department to make gratuitous bacteriologic examinations and Wassermann tests for venereal afflictions will doubtless help very materially not only the therapeutic but also the prophylactic measures.

To my mind these admirable resolutions of the Board of Health would be strengthened in their efficiency if the afflicted could be assured, and I mean particularly that class of patients who are dependent on free treatment in public institutions, that the records at the Health Department concerning venereal diseases will not be open to inspection by the public and that only legally authorized individuals can have access thereto. The venereally afflicted patient without means should be made to feel that he is treated by the official medical authorities with the same secrecy as the private patient of a physician. To my mind it should distinctly be specified by law under what condition the records of the Health Department concerning communicable and infectious diseases may be inspected, and by whom.

The importance of educating young men and young women regarding sex relation has been so often advocated that I think we do not need to dwell on it here except to emphasize its importance. Knowledge of a possible peril confers in this instance the greatest motive power for prevention. In connection with education in sexual relations and venereal diseases in school and college, I would suggest that a community of any size should have a public museum of hygiene, including wax models, showing not only the physiologic development of the normal child, but also the results of venereal vice. Nothing is more demonstrative and educating than such ocular evidences. May I say right here in parenthesis that we cannot expect parents to be the educators of their children in all that pertains to these important subjects without having given the father and mother an opportunity to educate themselves.

What other modern conceptions have we concerning venereal diseases? Physicians and lawmakers are almost unanimous in the opinion that people afflicted with syphilis or gonorrheal diseases in the infectious stages should not be permitted to marry. The willing or conscious communication of a venereal disease to any one should be punishable by a severe fine and an incarceration until the disease is cured.

Knowing that the so-called "social evil," which I prefer, however, to call the "social ill," is in a very large measure responsible for the spread of venereal disease, we must devote a few words to this topic. But since I have chosen to change the name from *evil* to *ill*, let me tell you briefly what has led me to this conception. The general understanding of the word "evil" implies that the perpetrator of the act which is supposed to be an evil one is an evildoer or criminal. I believe it is neither just, humane, nor even consistent to call these offenders, male or female, criminals in every instance. Before an audience of this kind I do not need to state that there are numerous cases in which the unfortunate woman is really innocent, if not before the laws made by man, at least before the higher divine laws. That there are also instances when the other sex, the innocent and unknowing youth, has fallen a victim to the experienced, unscrupulous courtesan, often old enough to be his mother, is also too well known to need more than to be mentioned.

When not applied to physical conditions, the word evil is usually understood as wicked conduct or criminal disposition, while the word ill or illness means a derangement and an unwholesome condition. By rights, we should not even call prostitution *the* social evil or ill, as it is by no means the only one, for surely alcoholic intemperance and gambling must also be considered social evils responsible for fully as much misery as prostitution.

Presuming, then, that you will grant me the privilege of substituting the name "social ill" for "social evil," what definition would I wish to give of this term in order to convey in concise words my reasons for the change? I would say the social ill is an abnormal, pathologic condition which results from disturbances or failures of sociologic functions of the individual, for which in few instances the individual alone, but in the majority of cases our social fabric, is responsible.

Let us now rapidly trace some of the modern conceptions of the etiology of prostitution. I cannot, nor will I, subscribe to the cruel statement made by some sociologists and syphilographers that many women are born prostitutes. There is no evidence for this assumption. On the contrary, from the experience I had with this class of cases when I was in general practice, I am willing to testify that the majority of these unfortunate women, when they are mothers, work and slave that their daughters may have a happier lot than was their own.

All physicians know, of course, that just as there are boys born with an adherent prepuce, so are there girls born with an adherent clitoris. When these trifling physical defects are not corrected they may lead to the habit of masturbation in both sexes and later on to abnormal sexual appetites. When operated on, the acquired pernicious habit usually ceases. But if, as is asserted by some authorities, this physical defect predisposes the female child to prostitution and the male child to corresponding abnormalities, then by all means let us make it a practice to have every child, male or female, carefully examined and treated for such possible defects by a competent physician.

Hysteria is also mentioned as a predisposing cause. Any hysterical manifestation in a child should have timely and prompt treatment. The fact that there are among prostitutes some that are mentally defective is well known and it should receive the most serious consideration in dealing with the problem from a prophylactic as well as curative point of view. Of the girls sent to the Waverley House of the New York Probation Association during the past year and especially examined for their mental condition, more than 35 per cent. were committed to institutions for the treatment of mental and nervous diseases. If segregation, or better yet, sterilization of these unfortunate creatures would be resorted to promptly and in every instance, it would be a forward step toward rational eugenics. All other factors in the etiology of prostitution are simply social. Child labor, underpaid woman's labor, desertion, misery and poverty are recognized to-day by all sociologists as one of the principal predisposing causes to prostitution, and there is but one remedy for all: child labor must be done away with and the woman who is dependent on her own resources must be enabled to earn enough money to support herself respectably. When such a policy will become universal and not be confined to one State or one country, then the efforts of the United State Government to abolish the white slave traffic will be crowned with success, because there will be no slaves to traffic with.

Last, but not least, let me not forget that prostitution is as much, nay, even more a man's problem than a woman's problem. It is we, the so-called stronger sex, the creators of our social fabric, the lawmakers and those who enforce the law, who are responsible for this blot on civilization. The fact that prostitution existed in antiquity is no excuse for its existence to-day. There is much, much for us men to do. whether we are physicians, social workers, or plain citizens fulfilling our tasks as such toward bringing about a happier and saner state in regard to our sex relations and our attitude toward our sisters, unfortunate, but in my opinion not deserving the name "fallen."

The very praiseworthy efforts of the United States Government and of prominent citizens, such as Mr. Rockefeller, Jr., to suppress the socalled white slave traffic, must be mentioned as one of the modern phases of the combat of the social ill, and equally praiseworthy are the efforts of the Public Welfare Association. While the Mann Law attacks the white slavers, the association under the leadership of Mr. Stanley W. Finch of the Special Committee of the Suppression of the Traffic, undertakes to reclaim the slaves by work and social uplift. But praiseworthy as all such movements are and indispensable for the time being, what would morally benefit both sexes and at the same time tend to do away with the social ill would, to my mind, be early marriages and small families. No child should be brought into this world physically, mentally, and socially so handicapped that its rise to a true, sane, sound, and useful member of society is an impossibility.

I know, of course, that the social and economic conditions of the present time do not permit early marriages in most instances, and it will require a readjustment of our economic conditions bringing about a fairer wage scale for men and women and a decrease of the cost of living. The housing of the masses must, of course, also be concomitantly improved; there must be less congestion and more individual homes.

The teaching and practice of prevention of conception when the issue is most likely to be a degenerate, or a physical, mental, or moral monstrosity bound to become a burden to the community, should not be considered a crime, but rather a sacred duty which every loyal citizen owes to his country.

What can we do to-day to help stem the misfortune, disease, and misery brought about through the social ill? We can take to heart what I have already said, carry out these recommendations gradually and persistently, and I am sure we shall help in the sane solution of the problem. Where prostitution with all its evil influences exists, use repressive measures (honest policing of segregated districts to prevent robbery, graft, and other crimes) rather than oppressive measures, and above all hold out the helping hand to those who wish to be helped. Open, if you can, to-morrow a house to which the woman of the street, tired of the life she has been leading, may escape; where she will be received with open arms by sisters and brothers, the children of the same God; where, if she is diseased, she can be healed; where, if she is uneducated and uncultured, she can receive education and culture; where she can forget the past and where she can learn to look to the future and to her reëstablishment as a respected member of society with absolute certainty. But in the name of mercy, I beg of you not to call this house a Magdalen Home; call it a house, or simply a home, call it anything but that. It is my privilege to be one of the incorporators of a house in New York City such as I have just described; we call it the Waverley House.

I know the pessimists will tell me you can never, never, reform a prostitute. Well, perhaps not all, but if I tell you the results of two years' work at Waverley House, in how many instances we succeeded in curing the social and physical ill of these women and created opportunities for work and employment in other spheres, you will pardon my optimism. Of 300 women who passed through this house, either by self-commitment or on probation granted by the court, 119 have changed their previous mode of life, have become happy, honorable, and useful members of society. Miss Maude E. Miner, an official probation officer, who is at the head of this institution because of her experience and devotion to the cause, has been in constant communication with these 119 girls. Every letter from them expresses their gratitude for having been enabled to leave a life in which they were so thoroughly unhappy. And last, but not least, this place of refuge for those unfortunate women means in many instances freeing them from the men who lived on their shame and were so often responsible for their enslavement.

One more word on what we can do now. Every general hospital of any size should have a ward set aside for the treatment of venereal diseases. I do not believe in special hospitals for the treatment of venereal diseases. Few would voluntarily enter. But if it were known that any one could be treated in a special ward of a general hospital, that he could be sure that his identity would only be known to the physicians and higher officials of the hospital, most of the objections which the venereally afflicted man has to-day to hospitalization would be done away with and prophylaxis and proper therapeutics would help to diminish the fearful consequences of hidden and neglected venereal diseases.

There will, of course, always be a goodly number of women known as prostitutes, who are afflicted with the disease, and who, indifferent to the fate of others, continue to remain untreated, ply their trade, and thus disseminate the virus of syphilis and gonorrhea.

This brings us to the most difficult of all the problems created by the social ill. Shall a community, such, for example, as New York, which has, according to a conservative estimate, 200,000 syphilitic subjects and perhaps four times as many gonorrheics, and 40 to 50,000 prostitutes, of which a very large number is venereally infected, attempt the regulation of prostitution? According to so great an authority as Fournier of Paris, regulation and sanitary supervision are of little avail. On the other hand, according to Bierhoff an American authority on the subject, they have been most successful in reducing venereal morbidity and mortality in Dresden. Neither regulation nor sanitary supervision, nor their absence, nor their abandonment are new conceptions of the problem. But the results obtained and tabulated in the Hygiene Exposition of Dresden (1911) must give one food for thought, and, because of our present state of civilization and the fearful prevalence of venereal disease and its terrible consequences to the health of our nation, they make me look a little more favorably upon the Dresden method.

The Municipal Clinic of San Francisco is trying, as an experiment, a method similar to the one in vogue in Dresden, and claims good results, particularly because it combines medical and sociological work. There is one thing, however, which is entirely overlooked in both the Dresden and San Francisco methods, but which appeals to me most strongly. Taking the San Francisco Clinic as an example, the woman who is found free from diseases receives a certificate attached to her photograph. Yet, to what dangers is she not exposed during the 24 or 48 hours before she will be examined again! Why not protect her too? The life of the prostitute is sad enough as it is. To grant her the same protection which is offered to her male visitor would be only just. Let him who enters the public house to gratify his passion be also obliged to present a clean bill of health.

For further details of this difficult subject I refer my readers to Dr. Rosenstirn's communication to the Fifteenth Congress on Hygiene and Demography and to three most admirable articles by Dr. Frederic Bierhoff of New York, which appeared in the New York *Medical Journal* of Nov. 12, 1910, Dec. 3, 1910, March 25, 1911, and April 1, 1911. The latter concludes that prostitution will continue to exist, and with its existence there will be a continuance of the ills consequent upon it; that it cannot be legislated out of existence, nor can the ills; that the most legislation can do is to attempt to decrease, in a measure, open and flagrant solicitation upon the streets; to protect the young, innocent, and inexperienced from contamination by hardened offenders; and to protect the health of the community, guilty and innocent alike by police regulation, examination by a police surgeon and retention until the disease is cured. I would wish to add that all this should be done in a most humane manner with no intention to punish, but to cure and to redeem.

There is not the slightest doubt in my mind that through rigid examination and the treatment of discovered cases many centers of infection will cease to exist and the morbidity and mortality from syphilis and gonorrhea will be very materially decreased. From the last report of the New York Probation Association we learn that out of 135 girls examined 38 were afflicted with gonorrhea and 7 with syphilis. These figures may perhaps hold good of the average morbidity of venereal disease among prostitutes in large cities. This alarming prevalence of dangerously infectious diseases should cause us to pause and think whether inspection and medical examination are really as useless as the opponents of these measures claim them to be. But, of course, to make this work effective every case which may come before judicial authorities, or any girl who voluntary enters a house of refuge to be released from the bonds of a life which she abhors, should not only be most carefully examined medically and cured if found ill, but her case should also be examined socially, not by the police but by trained social workers, and preferably women. The reason why the woman is a prostitute should be ascertained and all possible efforts should be made to restore her to society and assure her an efficient earning capacity. All such women should be treated as patients only and not as criminals, for aside of their being physically afflicted they suffer morally and mentally from the social ill which society has created. The many married women of our nation who are blessed with health and happiness, but have remained childless, we do not know why, might find here a field of fruitful labor whereby they could render a great service to God, their unfortunate sisters and mankind in general.

Men, of course, must also rise to the situation and those who can help by popular education in all matters relating to sex hygiene, the statesmen and employers, teachers and men of influence in the various walks of life, can in many ways participate in diminishing the cause as well as the effect of the social evil. But women by their influence or personal service can help more than men. It will be easier for the wife of the employer of girls to see their need and to influence her husband to pay a living wage to his women employees; the woman of wealth and leisure can help financially the altogether too few centers of refuge for her unhappy sisters; her leisure time can be devoted to personal service. Woman teachers can help in the education of girls and all mothers can do in this respect what no one else can do so well.

I do not believe I can close this portion of my Oration, this plea to woman to help woman, better than by relating the true story which Louis F. Post of *The Public* so feelingly tells under the heading "The Heart of a Magdalene." It shows how this Magdalene, not of 2,000 years ago, but of the present day, not of Jerusalem, but of New York, has helped her sisters, and that she has done perhaps more than any other woman in no matter what sphere of life to redeem numbers of girls. By her keen insight she has a better conception of the situation than many a social reformer, statesman, philanthropist or physician, man or woman.

Mary Goode is described as of small stature, severe, prim, and puritanic looking. She has "shrewd eyes that are yet kindly, that fill up easily with sympathetic tears, and that are half hidden behind gold eyeglasses. Her blond hair, braided plainly, is beginning to turn grey at the temples; her chin is soft, cleft with a dimple, but her mouth is the grim, straight mouth of a fighter. She dresses quietly, this Magdalene of New York, and now her only jewelry is a wedding ring.

For the first time we have here a Magdalene who bares the hearts of her sisterhood. Others have spoken for them, in charity or in contempt, to lift them up or to trample them farther down; but in her voice, ringing through the newspapers of a continent, that sisterhood of all the centuries speaks for itself.

Mary Goode owns and manages a house of prostitution and has given valuable information to the New York Aldermanic Committee "about the amount of money the police wring out of the fallen sisterhood for protection in their poverty-driven pandering to the vices of men." Listen to what this modern Magdalene has to say:

"Every one is so hard on us, every one condemns us utterly. We are all outcasts, from whom good women draw away their skirts; yet we are not wholly bad. There's some little green spot still left in our hearts. I do not boast of what I have done, but I have saved many a girl. I have sent many a poor, pretty, little fool, anxious to see the world, back to her home. I never let a good girl come into my house. I have never led any girl into evil. Women—good women—think that women such as I, and resorts such as I keep, are their greatest enemies. They do not know the truth, and that is that *we* are not the home breakers. The girls that wreck families are the pretty flirts. This brings me to what I told the investigating committee, and that is, that the social evil can never be regulated until we women of the underworld help you do it. We are the only ones that can cure it. How would we do it? First, by having people recognize a situation that has always existed, and that always will exist, and deal with it honestly instead of hypocritically."

"A situation that always will exist?"

"Yes, as long as the necessity for it is tolerated as man's necessity, while the crime of it is denounced as the woman's crime.

"For every female prostitute in human society there must be many who are men; else this age-old profession could not persist.

"Why, then, do we always condemn the woman? segregate the woman? quarantine the woman? sanitate the woman? police regulate the woman?

"Our Magdalene answers us.

"It is because we are hypocrites.

"She gives an instance, only one, and there are worse ones higher up and nearer to the altar, but here is hers; 'I was raised by God-fearing parents, and last Sunday I went to church. I crept in like a thief, and I knelt by the door, so humble I scarce dared raise my eyes to the altar. As I knelt there, a big police official went by with his chest thrown out and marched himself to a front pew. I knew his pockets were lined with the money of women such as I am, and that when they refused to pay tribute he broke down doors and threw unfortunates out half-clad in the cold streets in winter, to be picked up by the traders in women.'"

Very pertinently Mr. Post adds to this interview: "Is not this woman's plea for her abhorred sisterhood a reasonable, as well as plaintive one? Isn't it true that the women of the underworld can help at least to cure the evil of which they themselves are victims more than any one else? If the social evil is to be dealt with honestly, it must be recognized as a *human* evil, and no longer as a *woman* evil. And if it be recognized as a human evil, those who are in it and of it, no less than those who are chiefly responsible for it (whether directly as customers, or indirectly as beneficiaries of the economic conditions most at fault for it), should be taken into counsel. Magdalene herself must be allowed to help."

The social ill (for, as I stated above, I do not like to call it the social evil) concerns us all, men and women alike, and in no matter what sphere. Those particularly responsible, the statesmen, philanthropist, educator and employer, not only the employer of large bodies of men and women, but every kind of employer, should feel and share the responsibility of this upward movement toward a higher and happier state of civilization. We must have the wisest of statesmanship, the highest of social justice, the best of personal service, the greatest of love and compassion. Not until all these forces will have combined can we hope for an eradication of this social ill.

(To be concluded in April.)

VIKING VITALITY

Professor Retzius seems to be greatly perturbed about the fate of the blonde race. Although the fair, blue eyed dolichocephalic type has been recognized as an anthropological incident for some fifty years, it is only lately that the problems presented by these people have attracted serious attention. We know that they were evolved in the cold dark cloudy places of the earth, and they cannot move too far from their place of origin without paying the penalty. City life destroys them and they cannot work in factories. The boundless spaces of the earth and sea nourish them; they crowd on ships and in the armies of the north in their efforts to breathe the untainted air that is the very breath of life to them as it was to their Viking forbears. These facts have a direct practical value. We must remember that where change of environment may be beneficial to the pigmented city-dweller it may be an absolute necessity to the blonde Aryan in, for instance, cases of incipient tuberculosis. The fair haired race is here amongst us and demands special treatment, which at present it does not get. The insurance companies could help us greatly by their mass of statistics, but up to the present they do not seem to have recognized even the existence of our fair haired sojourners.

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EDITORIALS

THE FLOOD OF BOOKS

It is estimated that over 12,000 books were published last year in this country and Europe. This enormous output has a tremendous psychological suggestiveness. At least three or four thousand of this number were published in this country. While a large proportion of them are novels, histories, books of science, books on poetry, and discussions of political questions have steadily increased.

English writers think there is an over production, and some of the great publishing houses look into the future with considerable doubt and unrest.

The medical book trade manifests the same activity. In this country over 100 volumes were published last year. In England, Germany, and on the continent fully 1,000 books appeared on medicine and its collateral branches.

Active students in medicine find it impossible to read but a small number of the books issued in this one department of literature. Recently a grateful patient of a reading physician left an order with a New York house to send to this physician every good medical book which appeared. At the end of the year the doctor objected, and declared that he could do little more than read the titles and prefaces. The books were so numerous, voluminous, and varied so widely in tone and presentation, that it was an exasperating labor even to learn what the author was trying to present.

Some of the more prominent medical journal reviews of these books indicate that the reviewer is unacquainted with the contents and that his knowledge is taken entirely from the publishers' comments.

It would be interesting to know why these books were written, to what extent they are called for, and what becomes of them. Medical book publishers are business men, and it is therefore certain that the book is either paid for in advance by the author, or the prospect of its success in sales is assured.

Of course, there must be tremendous losses if the publishers assume the entire risk, but is this true, except in exceptional cases?

We have heard of one author who boasted that he had spent $3,000 on the plates and publication of his book. Only the publisher knows whether any of this came back or not. Readers of new medical books even in special departments deplore the absence of new facts, and hence the question is how far is medical science promoted by this plethora of books? Take, for instance, the books on surgery, how many of them have new facts and new methods of practice that are helpful?

One authority declares that not one in a dozen contains anything more than restatements of old facts, and that frequently this is done in an exceedingly faulty way. Some of the books in their effort to lead and open up some new field go off into the realm of myth and fiction, while more conservative men find that such teachings are impractical and little more than personal opinions of the author.

The same is true in other departments, where pretended discoveries of new forces from drugs and new germ diseases and new activities of organs are presented in book form with a certain positiveness that does not bear the test of investigation.

Many popular teachers sum up their studies in a book expecting the student to be the purchaser. When the teacher dies another man takes his place, and he, too, issues a book. This is only contemporaneous writing, and is useful for its personality, but not unfrequently it misrepresents or more often represents the author's weaknesses.

Are these books to be encouraged and what will be the outcome of this increasing mass of literature? Thoughtful men are doubtful as to the value and the influence of this great tide of medical books.

The impression is growing that journals best represent the progress of medicine at present; that after the facts have appeared in journals and passed the bar of scientific scrutiny and test, then they can be put into book form, but even then their future as contributions to science is not assured.

The journals are ephemeral, transient, and represent the facts as they appear at the time, and while the author aims to go further, he often fails. There is a psychological aspect in this desire to become a medical author which is not altogether plain to all medical men.

SODIUM SULPHATE AS AN INTESTINAL DISINFECTANT

Sodium sulphate has recently received some attention, the claim being made that it is an intestinal antiseptic, useful especially in dysentery, infantile diarrhea, and typhoid fever. It is said that these conditions are improved when the dose of the salt is short of that usually considered laxative.

Whether the benefit which follows the administration of sodium sulphate be due to an antiseptic action as this is commonly conceived, *i.e.* a substance destructive to germs, is extremely doubtful. Saline purgatives stimulate the intestinal glands to increased secretion, causing an accumulation of fluid in the intestinal tract that stimulates peristalsis and thus a more or less copious fluid evacuation. There is retarded absorption in fact, with a considerable excretion of the basic principle through the kidneys, while the acid content escapes more largely in the feces. That there is a decrease in intestinal fermentation following small doses of sodium sulphate is apparent, but may this not be mechanical instead of chemical? Are not the offending microörganisms disposed of through the stools instead of as some profess to claim through destruction by antiseptics?

To administer a remedy for the purpose of destroying the pathogenic bacteria in the intestinal tract is a questionable procedure, as such a remedy would operate at the same time against the normal bacteria which are essential to the proper conduct of the intestinal functions, and which are the most important means by which these disease producing invaders are destroyed and eliminated. It has been suggested that the introduction into the intestinal tract of such bacteria as are known to inhibit the growth of certain disease producing organisms, such for instance as typhoid, dysentery, etc., per enema in fluid agar cultures, is to be commended. This seems to us rather radical therapy.

To return to the sodium sulphate in dysentery. We recall the treatment of such conditions in 1860-1870 by a noted physician, with this remedy and the almost universal success which followed, especially in infantile diarrheas or summer complaints of nursing children. The germ theory of disease was not recognized at that time, nor had any of the long list of pathogenic microörganisms known to-day then been heard of. On what theory was based this treatment we do not know, but the results were admirable when other agents failed. Sodium sulphate was given in dysenteries of all ages as well as in typhoid and similar conditions; to children in doses of one grain with one to two drops of deodorized tincture of opium with camphor water, every three or four hours until the character of the stool was changed to approaching normal consistency, color and odor.

We are of the opinion that sodium sulphate inhibits the growth rather than destroys the offending bacteria, and that antiseptics are useful locally, but seldom if at all in intestinal disturbances.

THE INCREASED COST OF LIVING

The high cost of living affects all commodities. But most of the discontent caused by this increase centers in the high prices of food products, particularly of meats. The householder who compares his butcher's bill of to-day with that of ten or even five years ago, is likely to get a shock, while a sample restaurant menu of 1913 will show at least an equal increase in prices when compared with one of 1906.

An interesting light on the chief factor in American local conditions is shed in the report of the Department of Agriculture on farm animals, recently issued. This report shows that the number of cattle, sheep and pigs in the United States is steadily decreasing, while their market value is steadily increasing. At the same time, the nation's population and food demand is growing rapidly. In other words, the cost of meat on the hoof is rising just as it is rising when bought at retail. There are now a little more than 20,000,000 milk cows in the United States, the estimate showing a decrease of 202,000; but the value of the entire herd is estimated by the Department as $107,000,000 greater, the total now being $922,000,000. The number of beef cattle is given as 36,000,000, 1,200,000 fewer than at the beginning of 1912. Nevertheless, their value is estimated $158,000,000 higher than the value of the more numerous herd of a year ago, the total being given at $949,000,000.

Sheep, numbering 51,000,000, decreased almost 1,000,000 in number, but the valuation has swollen to $202,000,000, increasing about $21,000,000 in a year. The estimate gives over 61,000,000 hogs, a decrease of over 4,000,000, but their valuation is given as $603,000,000, an actual increase of $75,000,000.

There seems to be some reason to lay a portion of the blame for the increased cost of meat products directly at the door of the American housewife. Efforts have been made to educate people to eat and housewives to order something besides porterhouse steaks and choice cuts of roast beef. So far, these campaigns seem to have met with little success. Mutton is now much cheaper than beef, but there is no indication of an increased consumption of mutton. The cheaper cuts of beef, if properly prepared, make most delicious eating, as any French chef will demonstrate, yet there is little demand for cheaper cuts. In France porterhouse steak is left as a delicacy to the wealthy and the housewife prepares toothsome dishes from cuts of meat which cost one-half to one-third that of the porterhouse. Some efforts have been made to popularize the use of the casserole, that ingenious emblem of French economy, in the United States, but casseroles are used chiefly in the homes of the wealthy or well-to-do in this country, while those whose incomes are extremely limited and who could profit most by its use, hardly know of its existence. If American kitchens were run more economically there would be fewer complaints of the high cost of living.

Meanwhile, let us take what consolation we can from the fact that prices have decreased from their high peak of May 1, 1912. The Annalist weekly index number of February 1 was 135.6, this being the average wholesale price of 25 selected food commodities. These same commodities totaled 152½ the first of last May, which was the highest price of food products ever reached. Our present prices are about the same as those of August, 1911. But they are almost 100 per cent. higher than the same index number of 1896, which showed a figure of 79.9.

THE PITUITARY GLAND

Recent years have seen remarkable advances in our knowledge of the ductless glands, says an editorial in the Maryland *Medical Journal,* September, 1912. It is hard to believe that perversion of the functions of such small anlage as the suprarenals, parathyroids, or pituitary can produce the extraordinary body changes attributed to them. A thorough realization of these facts by the medical profession was brought about by the investigations of Berthold on transplantation of the cock's testicle; by Bernard's observations on hepatic function, demonstrating the existence of an internal secretion (glycogen); by the work of Addison, which attributed a definite clinical picture to disease of the suprarenal capsule, etc. With these facts it was comparatively easy to come to the conclusion that certain definite clinical syndromes followed either an increased or decreased secretion of the thyroid glands. The next step in determining the part played by glands of internal secretion upon the body was that a removal of the parathyroid produced tetany. The most wonderful advancements, however, of these important studies are merely a beginning. In this advance, protocols as enunciated by Harvey Cushing and his coinvestigators at the Johns Hopkins University are pointing the way. The special field which Cushing has invaded is the determination of the functions of the pituitary and the evolvement of medical and surgical processes for correction of any abnormality arising from perversion of its secretion. Cushing has determined by experiments upon dogs that the hypophysis cerebri may pour either too little or too much secretion into the body, and as a consequence definite alterations occur in the structures of the body. If minus in quantity, secondary sexual characteristics of an adult will revert to the infantile type: the body will become fat, the vagina shrink in size, pubic hair fall out; if the secretion is below par in a child, the secondary sexual changes do not develop, the child remaining fat, pudgy, and retaining its primary sex characteristics. If the gland over secretes, according to the age of the individual, gigantism (youth), acromegaly (adult) will result. In these experiments it was shown that removal of the pituitary gland markedly increased the carbohydrate tolerance, a fact afterward used clinically in determining whether the gland was under or over active. In those suffering from decreased secretion from the hypophysis it was found that the carbohydrate intake was enormously increased without the appearance of sugar in the urine in sufficient quantity to reduce Fehling's solution. It was also determined that if there were insufficiency of the posterior lobe secretion, an injection of the extract from the anterior lobe would cause a rise in temperature.

EGGS AS FOOD AND OTHERWISE

The nitrogenous part of the egg contents are albumen, which is easily digested and assimilated. Lecithin is found in the yolk. The fat of the yolk is largely lecithin, which while undergoing digestion is converted into choline, a substance which may under certain conditions become of such quantity as to cause symptoms of poisoning. The white of the eggs can be partaken of in all conditions and all ages without discomfort either raw or cooked in various ways. Infants, often, will thrive on white of egg mixed with water with a little sugar of milk and sometimes milk added when they cannot digest other food of any kind. With invalids, when it is desired to increase the albumen content of the food, where there is gastric intolerance of other foods, or in cases of dysentery, the white of egg will be found an invaluable aid to nourishment. Salt and lemon juice may be added to taste. When egg albumen is thus administered the mixture should be allowed to stand for a short time and then strained to remove any deposit or precipitate.

Eggs are also useful for other purposes than for food. For burns and scalds there is nothing more soothing than the white of egg spread over the wound. It is preferable to collodion or oil of any kind and easily obtained. It protects the wound from the air, which causes the extreme discomfort, and allays pain.

VENOUS EMBOLISM AS A CAUSE OF ACUTE GASTRIC AND DUODENAL ULCER

Thrombosis of omental veins is readily produced by mechanical thermal and bacterial agencies. Emboli may frequently separate from throwboard omental veins probably by reason of the periodic vasodilation and contraction of these veins associated with the ingestion of food. Emboli from omental veins may, under certain circumstances, be carried by gastric veins and become imparted in a venous plexus of the gastric submucosa, thus forming a gastric ulcer. The hematemesis sometimes met with in acute appendicitis is due to an acute gastric ulcer resulting from blockage of a gastric vein by a septic embolus from a throwboard omental vein. The omental vessels may form the connecting link in the association of chronic gastric or duodenal ulcer, with an inflammatory process in the lower abdomen. The same theory may possibly explain some cases of acute pancreatitis brought about by septic emboli from an inflamed omentum.

TUBERCULOSIS AND POVERTY.

The New York Association for Improving the Condition of the Poor has recently completed a study of the causes of poverty in New York, from which the conclusion is drawn, that tuberculosis is responsible for over 8 per cent. of the destitute homes in the city. It was found that of 6,565 families applying for aid between October 1, 1911, and June 30, 1912, 1,605 were forced to do so on account of illness, and tuberculosis was found to be the disease responsible in 555 or 34 per cent. of these. Rheumatism forced 187 other families into dependency, and the remaining cases were classified as follows: Illness attending childbirth, 161; kidney and heart disease, 156; pneumonia, 99; children's contagious diseases, 48; paralysis and epilepsy, 48; eye and ear diseases, 45; cancer and tumors, 44. The Association concludes from these statistics that the prevention of disease, and especially of tuberculosis, is a most important phase of the campaign against poverty.

MAKE DEATH EASIER.

In a remarkable book on death, published recently, Maurice Maeterlinck attacks medical science for its efforts to prolong the life of a person doomed to death.

"All our knowledge," he says, "only renders the death of human beings more painful than that of animals, who know nothing. Doctors say in the present state of science that there is never a certainty of death with a few exceptions. Not to maintain life until the last limits, even at the price of insupportable agony, is perhaps to kill. The present idea is that the worst tortures are not in vain if a partial existence is prolonged a few days. To cheat death one hour is regarded as worth a life of pain."

Maeterlinck adds that the doctors, however, are coming to agreement on the advisability, when there is no longer a chance of saving life, of softening pain in the last moments.

"If it not death," he says, "that attacks life, but life that outrageously resists death. Perhaps one day medical science will allow death to come surely and silently when life's course is run. When the doctor and patient know what they ought to know there will be no physical or metaphysical reason why the coming of death shall not be as comforting as sleep."

Maeterlinck says it is surprising that death, which ought to be the most perfect and luminous of ideas, since it is the thing most inevitable, should be most kept in the background because of the world's grovelling fear thereof.

"All the terrible agony we impute to the last fatal moment," he says, "does not naturally belong to death. This supreme suffering is lengthened in proportion to the advance of science. All doctors believe that it is their first duty to prolong as far as possible the most atrocious convulsions of the death agony. Who, at a deathbed, has not wished to throw himself at the doctor's feet and demand mercy for the dying, without daring to do so? The doctors are so convinced of their duty that pity and reason are blinded in fulfillment of the highest and most revered law of the human conscience."

DIGEST OF CURRENT MEDICAL LITERATURE

Clinical Studies on Feeding in Infantile Malnutrition.—In discussing a paper read before the New England Pediatric Society, November 2, 1912, by Charles Hunter Dunn, M.D., of Boston, and printed in the *Boston Medical and Surgical Journal,* January 30, 1913, Dr. F. B. Talbot said: "I did not hear Dr. Dunn use the words 'irritating, green stools' as Dr. Morse used them, and it seems to me that the fact whether the stools irritated or not is one of the most important factors we have in deciding whether carbohydrate is digested or not. Starch, which is a polysaccharide, is first split by the digestive juices into the disaccharide and later into maltose, in which form it is absorbed into the blood. If the digestion is abnormal, the splitting of the maltose can be carried on further into acetic or lactic acid. If the acids are strong enough they irritate the buttocks. Information as to whether the buttocks are irritated or not is important, because in my experience the digestion always improves in such cases when the sugar was diminished. Another factor was omitted in the description of the relation between precipitated casein and a comparison of the total proteids. It is a well known fact that if the relative proportions of the fat and the proteids are varied, the reaction of the stool may change accordingly. When the reaction of the stool changes from acid to alkaline the stool changes from a rather loose to a formed and sometimes a constipated stool; in other words, if Dr. Kendall is right, the putrefactive bacteria have gotten a foothold and have replaced the fermentative bacteria. I noticed on several of the charts that there was such a change and I wondered whether it was not the change of the relative proportions of the fat and sugar that improved the digestion rather than the precipitated casein or total protein. Many babies have gained on less than 100 calories per kilo of body weight. Last spring I had an opportunity to determine exactly how much carbon dioxide was excreted by nearly normal babies, and in Dr. Benedict's laboratory we found that the amount excreted depended on muscular activity. Practically all the estimations of the caloric needs of babies have been obtained from the carbon dioxide excretion alone without taking into consideration the oxygen consumption. In a normal baby the carbon dioxide secretion can increase 50 per cent. when an absolutely quiet baby cries lustily, and I think that the activity of the baby can explain many of the results that are not explained as Dr. Morse explained them, by the gain in weight being due to the increased water. I believe that this may explain a very large number of cases in which the baby is so weak that it does not move enough to use up the energy which is given in the food and that such a baby does not need so much food as an active, lusty baby that is crying a great deal and exercising itself by waving its arms and kicking."

The Cause of Diabetes.—What is the cause of the overloading of the organism with sugar; and in which organ does the seat of the disturbance which produces diabetes lie? Until recently it has been considered that diabetes was dependent upon a disturbance of a definite organ or locality. It was considered as dependent on a diathesis, but is now, however, regarded a constitutional anomaly; a disease of metabolism rather than a localized disease of an organ. But the term "general disturbance of metabolism" has no other meaning than as an aid for describing a condition or disturbance not yet localized. Corresponding to morphological differentiation of the organs there is a sharp differentiation of metabolic function. Scarcely anything is known of the general metabolism of protoplasm. Metabolism diseases are defined by Ebstein as depending on the lesser value of the protoplasma due to inheritance. But the presence of undeniable inheritance is not the determinant of a general affection, declares Minkowski. Each particular characteristic is inheritable, the form of the nose, color of the hair, as well as weakness of a definite function or an organ. Localization, however, in this sense is not circumscribed to the bounds of a single organ, as no organ works for self alone.

Further specific metabolism processes are not localized in macroscopical organs, but in the individual elemental tissues of which the organs are composed. It is not necessary that all the component parts of an organ be involved in a certain pathological state, indeed it is quite possible that an affection may be concerned with elements having the same functions, but situated in different organs. Diseased conditions may be the result of variable combinations of local influences. Diathesis, therefore, continues Minkowski in his thesis, "The Newer Opinions Concerning Diabetes Mellitus," *Medizinische Klinik*, November 27, 1911, translated for the *Medical Record*, February 1, 1913, by Graham Lusk, is not a term to be used where comprehension fails.

"It has been," continues Minkowski, "the endeavor to explain diabetes as due to the disturbance of a definite organ; the nervous system, liver and pancreas have all been credited with being the seat of the disease. Weichselbaum describes changes which occur in the pancreas in every case of diabetes; while the action of various organs having internal secretions has been determined and it has been found that the thyroids, parathyroids, adrenals and the glandular lobe of the hypophysis influence not only the metabolism of protein and fat, but exert a special influence modifying the behavior of carbohydrate in the organism. It is claimed that a mutual inhibitory effect exists between the so-called chromaffin system, the adrenals and the pancreas and reciprocal stimulation between the thyroid and the chromaffin system. Then, further, the functions of the organs are not only modified by the chemical substances circulating in the blood, but are also under the control of stimulating and inhibitory nerves, which are subject to the products of internal secretion. Adrenalin injections cause glycosuria, and in Addison's disease the sugar content of the blood is diminished. The pancreas inhibits the production of sugar in the liver. Injections of extracts of the pancreas prevent the occurrence of adrenalin glycosuria. The pancreas is controlled by the thyroid, which inhibits its action. Hence alimentary glycosuria in hyperthyroidism and increased tolerance for sugar in myxedema. The thyroid may itself be influenced by the glandular part of the hypophysis, its activity being increased. Here we have the condition acromegaly in increased functional activity of the hypophysis when glycosuria may result. The parathyroids act upon the thyroids in the reverse manner. Indeed the whole mechanism is under the control of the nervous system which sometimes through the sympathetic, sometimes through the vagus, either promotes or inhibits glycosuria. It will thus be seen that the cause of diabetes as well as the controlling factors include almost numberless possibilities, which will explain the many clinical variations which present themselves.

"This whole complicated system," says Minkowski, "of mutual stimulus and inhibition does not necessarily represent a correct interpretation of observations, but only one of many possible alternatives. To his mind this complicated system is inherently improbable. It should not be concluded without further proof that one organ acts upon another, just because the end result of the action of one organ may be increased or decreased by the coactivity of another organ."

Parental Care.—In a highly instructive as well as interesting Editorial in the *Boston Medical and Surgical Journal,* January 30, 1913, we find that: "The rapid advance of the idea that the State ought to care for the physical, as well as for the mental, growth of its children, draws attention to the discussion brought out by a paper on 'Medical Inspection of Schools,' at the latest meeting of the Massachusetts Association of Boards of Health. That here is a very wide field for enthusiastic, competent physicians who are fond of children and interested in hygiene and in education, cannot be doubted. Primarily, perhaps, the school medical inspector will concern himself with communicable diseases. But in Massachusetts at least he must now go further. There are very many remediable physical defects among school children. Hearing, vision, speech, breathing, posture, growth, walking, sitting, standing, teeth, lungs, heart, skin, nervous system or circulation may any of them be at fault. Some of these defects may be very serious. Skilled medical observers alone can detect them; but shall the State also assume the task of seeing that they are remedied?"

To many this form of "Paternalism" has seemed to be the natural, even the necessary result. But Boston's experience proves that the parents of her children are not yet ready to yield their prerogative, or, to put it more accurately, still appreciate their duty as parents.

Thus the records show, that while 65 per cent. of children examined in 1911 were defective in some physical way, only 30 per cent. showed defects in the examination of the following year, 1912; 54 per cent. of those found to have defective nasal breathing last year are relieved this year; 50 per cent. of the cervical glands, 40 per cent. of the defective teeth, and 42 per cent. of the hypertrophied tonsils have been relieved. These are not complete figures, but are from a large enough group to point the lesson. If the State will furnish the medical examination and will then notify the parents of the physical needs of their children, these parents will, to a very large degree, attend to the matter. They are surely as anxious as any official board can be, that their children grow up strong physically as well as mentally.

For this reason the School Committee of Brookline has taken the position that its duty is fulfilled when it has provided for such a "physical examination" as is required by Massachusetts law, to enable them to report to parents physical defects which may properly be referred by them to their own family physician or dentist for treatment. More extensive, paternalistic care of school children, at the public expense, such as has been proposed in some Massachusetts communities, seems an unwarrantable and injudicious assumption of authority and responsibility that belong properly in the family.

Etiology and Treatment of Arteriosclerosis.—In discussing the article above named read by G. W. M'Claskey, M.D., before the Mississippi Valley Medical Association, October 22-24, 1912, and published in the *Cincinnati Lancet-Clinic,* February 15, 1913, Dr. A. Sterne, of Indianapolis, said: "There are lots of things which contribute to this diseased condition. It seems to me that it is a mistake to take any arbitrary time of life, any given year, and say if changes in the blood vessels are not produced up to this time, then these things are not responsible for this condition. You will recall that at Atlantic City, some years ago, Dr. Cabot, of Boston, took the arbitrary position that if an alcoholist did not show arteriosclerosis at the age of forty-five, then alcohol had no effect on the blood vessels, and the common doctrine that alcohol produced arteriosclerosis was a myth. He also announced that hydrochloric acid in the stomach was a luxury. These things throw us entirely aside from the main object we have under discussion. We understand by arteriosclerosis, or should understand, a distinct disease, a disease of the working period of life. We take it for granted that the wear and tear of existence produces changes in the vascular system after many years which are incidental, which are evidences of oncoming age, atheroma, and we understand that that is a form of arteriosclerosis; but we do not, when we refer to arteriosclerosis as a disease, refer to these old men and old women, but rather to that condition of alteration in the blood vessels which occurs during the working period of life, during the time when the majority of men and women have to earn their own living and support their families. It is impossible to take these men and women and put them in bed, and keep them there. This is not a practical form of treatment. It is very wise, and should be done when there is an imminence of apoplexy, it seems to me, and it would be a beautiful thing if we could accomplish it in a great many instances. When we come to speak of the etiology of such a common condition as this, arteriosclerosis, we have to take immense figures. No one can stand up and say that this man or that man who has not used tobacco and has arteriosclerosis is an evidence that tobacco has no effect on the heart action, or that a man who has never been an alcoholist and has arteriosclerosis, or the obverse, that the man who has been drinking and smoking all his life has arteriosclerosis. You have to take into consideration in a case of this kind hundreds of thousands of individuals. Take a hundred thousand individuals, if you can find them, who use no tobacco. Take a hundred thousand individuals who use no alcohol. Take a hundred thousand individuals who use alcohol and tobacco, and from them get your average and you may be able to determine something as to the etiology of this disease."

Indicanuria.—W. G. Morgan in the *American Journal of the Medical Sciences,* December, 1912, reminds us that the presence of excessive amounts of indican in the urine is of frequent occurrence. Indican, which is chemically indoxyl sulphate, is nontoxic, but indol is slightly toxic, and it may produce such disturbances as frontal headache, irritability and insomnia, etc. He thinks it possible that excessive indol absorption from the intestine over a considerable length of time may, by stimulating an increased adrenal secretion, play a part in the production of arteriosclerosis and chronic nephritis. There are no means of determining the quantity of the toxalbumins other than by the amount or degree of indican in the urine. Hence the indican test of the urine indicates the amount of decomposition of proteids in the intestine. While all cases of intestinal putrefaction do not result in indicanurea, excessive indican indicates abnormal functioning, in which event the cause should be found and removed.

Malignant Renal Tumors.—W. F. Braasch in the *Journal of the American Medical Association,* January 25, 1913, reports the experience at the St. Mary's Hospital Clinic in eighty three operations for malignant tumors of the kidneys. The most important symptom is probably hematuria, observed in 64 per cent. In forty one cases, or 77 per cent., it was noted more than a year before patients presented themselves for treatment. Braasch concludes that hematuria, particularly when sufficiently marked to color the urine, is always to be considered a sign of some grave condition of the urinary tract. In fact, that it would be conservative to regard every case of hematuria as a result of a malignant process until it can be proved otherwise. Renal tumors may lie dormant or grow insidiously over a period of years, and by the time that hematuria, tumor or pain calls attention to its existence, it should receive immediate surgical attention.

Visceral Organisms.—Carrell (J.A.M.A., December 14, 1912) has succeeded in removing the heart, lungs, diaphram, stomach, liver, pancreas, spleen, kidneys and small intestines from a cat en masse and by means of transfusion, artificial respiration and feeding kept these visceral organisms alive from six to more than thirteen hours properly functionating. This remarkable piece of work promises to open new possibilities in physiological research.

THERAPEUTIC PROGRESS

Colloidal Silver in Pediatrics.—A. Netter, in *Presse Médicale,* January, 1913, reports the use of this agent in all varieties of infection. In labor and bronchopneumonia he uses a 15 per cent. ointment. In bronchopneumonia he uses it subcutaneously; serious cases, intravenously. Pneumonia can sometimes be arrested by the third day. In infectious or rheumatic endocarditis, pyemia and in grave diphtheria, excellent results were obtained as well as in infectious conditions with intestinal localization given either by mouth with coffee or elixir. Dysentery and paratyphoid rapidly yield when the remedy is given by enema, while in typhoid the duration of the fever seemed to be shortened. In inflamed adenoids accompanied with fever the instillation of a 1 per cent. frequently removed the trouble. In erysipelas he used an ointment with recovery in a large proportion of cases. It lowered the fever and diminished expectoration when used by mouth or inunction in tuberculosis.

Albuminous Dyspepsia in Nurslings.—Combe, *Paris Médicale,* November 23, 1912; *N. Y. Medical Journal,* December 28, 1912, avers that the child fed on cow's milk requires an additional diet rich in calories, for the baby utilizes only 7.5 per cent. of the calories in nitrogenous bodies, while the calf manages to assimilate 21 per cent. This in fact explains why the calf grows more than the baby. The baby fed on cow's milk receives too much nitrogen, and the superfluous quantity simply produces heat without aiding the baby in the least. There is undoubtedly an indigestion of casein of metabolic origin.

Functions of the Lungs.—Roger, *Presse Médicale,* November 9, 1912, points out that the usefulness of the lungs is by no means limited to the respiratory function. They not only eliminate volatile poisons, but act also, probably by oxidation, on a large number of fixed substances, are capable of arresting and destroying microorganisms introduced either by inhalation or through the blood, bear some noteworthy relation to the process of blood coagulation, and judging from the powerful effects of substances extracted from them, possess an important internal secretion.

Etiology of Prostatic Hypertrophy.—Cutter, *Revué Médicale de la Suisse Romande,* October, 1912, concludes that prostatic hypertrophy cannot be considered the result of a chronic local inflammation of infectious origin; neither can it be classified as a true tumor. It is a form of fibroepithelial degeneration analogous to goiter and to fibroepithelial growths of the mammary gland. Glandular tissue and stroma contribute about equally to the increased size of the organ.

Prevalence of the Heroin Habit Especially Used by Snuffing.—Phillips, *Journal of the American Medical Association,* December 14, 1912, calls attention to the symptoms in all of these cases, which resemble closely those of chronic opium poisoning except in the case of the snuffers, who exhibit a chronic rhinitis similar to the rhinitis with ulceration of those who snuff cocaine. The ease with which the drug may be procured facilitates the formation of the habit.

Melubrin in Acute Articular Rheumatism.—Saar, in the *Deutsche Medizinische Wochenschrift,* December 19. 1912, reports favorably on the use of melubrin. It acts promptly upon the swollen joints, relieves pain and fever in the majority of cases; has no appreciable influence on the heart, kidneys or stomach.

Adenom in Sexual Irritation.—Frank states, in the *Deutsche Medizinische Wochenschrift,* December 5. 1912, that adenom has an excellent sedative action in all irritations of the genitourinary tract and acts well as an anaphrodisiac. It is odorless and tasteless and is given one and a half hours before retiring in doses of three grams.

Sennatin: A New Subcutaneous and Intramuscular Cathartic.—Credé, *Münchener Medizinische Wochenschrift,* December 24, 1912, reports on the use of this product for hypodermic use. It is obtained from senna leaves, and has given excellent results in 300 cases of obstipation of various kinds, paresis, meteorism, etc. It is a durable sterile fluid, nonpoisonous even in large doses; stimulates peristalsis, allowing the escape of gases with defecation when mechanical obstruction is not too great.

Hormonal.—Pilcher, *New York State Journal of Medicine,* reports finding hormonal of considerable value in postoperative cases, but that its side actions are likely to appear in patients who are already deeply shocked. It is not without danger, as severe collapse has followed its use.

Picric Acid as Skin Disinfectant.—Mitchell (*Annals of Surgery,* August, 1912) asserts that solutions of picric acid—generally a one per cent. alcoholic solution—can be depended upon as germicidal and are to be recommended for skin disinfection because of their great penetrating power.

Anaphylaxis.—Koustansoff (*Roussky Vratch,* June 2, 1912) discovered that starvation, to a certain point, prevents anaphylaxis. This he found to be due to a diminution in the complement during starvation.

Aluminum Acetate in Colon Bacillus Infection of the Urinary Tract.——Koll, *American Journal of Urology,* June, 1912, reports a series of cases of colon infection in the urinary tract treated with aluminum acetate solution. He believes it superior to any other drug in its germicidal properties upon colon bacillus, and reports forty-two cases absolutely cured.

Sterilization of Water by Zinc.—Diebner, a French scientist, claims that a piece of zinc in water, or the zinc surface of a galvanized pail, kills bacteria, probably by virtue of their secretion of some acid, while not enough zinc is liberated to be toxic. It is well known that bacteria die on any clean metallic surface.

Administration of Antitoxic Serums by Bowel.—Blumenthal and Dzershorsky, *Roussky Vratch,* August 25, 1912, determined by experiments on animals that antitoxine given by the rectum is not absorbed into the blood, and has, therefore, no therapeutic effect.

Tasteless Castor Oil.—If an ounce of castor oil be stirred in half a pint of hot water with a teaspoonful of honey for a few minutes, then allowed to separate from the water, it can be poured off and drunk with no suggestion of the taste of the oil.

MISCELLANY

THE DEATH RATE IN NEW YORK CITY FOR 1912

During the year just past the death rate in New York City was 14.6 per 1,000 of population, the lowest recorded in the State's history.

The total number of deaths was 5,000 less than in 1911. There were large decreases in the number of deaths due to typhoid fever and tuberculosis, as compared with the figures of preceding years, the total deaths from tuberculosis falling from 14,200 in 1911 to 13,600 in 1912. A low record of deaths from diphtheria prevailed, while the number from cancer was slightly increased. Of the diseases seldom encountered in New York, were one death from leprosy, two from pellagra, five from rabies, five from glanders and one hundred from tetanus. Infantile paralysis caused nearly two hundred deaths.

AMERICAN SOCIETY OF MEDICAL ECONOMICS

The medical profession has initiated a movement for the proper study, consideration, and control of its economics by organizing and incorporating, under the laws of the State of New York, the American Society of Medical Economics. This society will devote its energies solely and exclusively to its express purpose, leaving the study of the question bearing upon the scientific and experimental sides of medicine to others. Membership in the new society will include all duly licensed practitioners of medicine of whatever school of practice. It aims simply to unify in economic matters the entire medical profession.

It will thus become possible to develop a degree of concerted medical activity to protect the general public against ignorant, improper, and corrupt legislation, medical frauds, the substitution of drugs in the dispensing of physicians' prescriptions, the sale of impure drugs and foods, and general quackery. The society has provided for the immediate establishment, through the development of branch societies which will ramify through every State in the Union, of a National body. The society was incorporated and organized December 18, 1912.

The medical profession, the highest in human service, is in a critical period of its history. Its business methods are so inadequate that its finances are impaired and its high standing is threatened by the makeshifts of young practitioners to get a bare living and by unprofessional competition.

Just as the Federal Government conserved the governments of the States, taking to itself only such functions as could best be exercised by a central body, so a society for the management and control of medical economics will not weaken nor destroy existing medical associations but operate to further the good of all.

THE ADVANCEMENT OF THE ANTHROPOID APE

A committee headed by Professor Waldeyer (*The Medical Press*, Dec. 18, 1912) has been formed to establish an institute for the psychological study of the anthropoid. It is estimated that another century will see the extinction of the gorilla, gibbon, chimpanzee, and the other higher apes. Science owes a great debt to these higher monkeys, and she is now determined to squeeze every drop from the simian soul before the last of the great apes walks through the valley of the shadow of death. Somewhere in the Canaries gorillas and chimpanzees are to be collected and studied. It will be an island like that of Dr. Moreau, except that plastic surgery will give way to experimental psychology. Phonation, gesture, comprehension of the spoken word, enumeration, color perception and educational possibilities are to be studied. Savages who dwell amongst anthropoids have a universal belief that the latter are not mere brutes, but men like themselves, and the investigators hope to discover mental traits hitherto unknown. The subject is a great and interesting one, but we hope that the education of the ape will not proceed too far. A speaking, sensible and Samsonian gorilla would be a terror in the land, unless indeed he developed like Peacocke's famous Sir Oran. If we are prepared to look upon the anthropoids as men and brothers, we must above all things bear in mind that we are our brothers' keepers.

ANCIENT FRENCH FOOD LAWS

The following edict, relative to the punishment of purveyors of impure food products, is reported to have been discovered by a Parisian antiquary in the archives of Puy-de-Dome.

"Whosoever shall have sold watered milk, in his mouth shall be set a tube, and into the said tube shall be poured the watered milk till the doctor or barber there present shall assert that the culprit cannot swallow more without being put in danger of his days. Whosoever shall have sold butter containing turnips, stones, or any other foreign substance shall be seized and attached in very curious manner to our pillory of Pontet.

"Then the said butter shall be placed on his head till the sun shall have melted it completely, and in the meantime the children and the meaner folk of the village shall insult him with such outrageous epithets as shall please them—subject to the respect of God and his majesty. Whosoever shall have sold evil or rotten eggs shall be seized by the body and exposed in our pillory of Pontet. The bad eggs shall be given to the children of the villages, who shall by way of joyful diversion, throw them in the face of the culprit, so that all may be full of merriment and laughter."

Evidently pure food laws are not solely a product of this day and generation, though the mode of their administration has been somewhat modified with the lapse of time. Apparently such laws were needed also in England, for a British writer of the eighteenth century speaks as follows of food in London in his time:

"The bread I eat in London is a deleterious paste, mixed up with chalk, alum and bone ashes, insipid to the taste and destructive to the constitution. As to the greens, the Londoners are so mad as to boil them with brass half-pence, in order to improve their color, and without this improvement in color they have no personal merit.

"Of fish I need say nothing in this hot weather, but that it comes 60, 70, four-score, and 100 miles by land carriage, a circumstance sufficient, without any comment, to turn a Dutchman's stomach. This is not the season for oysters, nevertheless, it may not be amiss to mention that the right Colchester are kept in slime pots, occasionally overflowed by the sea, and that the green color, so much admired by the voluptuaries of this metropolis, is occasioned by the vitriolic scum which rises on the surface of the stagnant and stinking water.

"The milk itself should not pass unanalyzed, the produce of faded cabbage leaves and sour draff, lowered with hot water, frothed with bruised snails, carried through the streets in open pails, exposed to overflowings from mud carts, spatterings, from coach wheels. . . .

"There is also the tallowy rancid mass called butter manufactured with candle grease and kitchen stuff; and their fresh eggs imported from France and Scotland.

"If I could drink water, I must quaff the mawkish contents of an open aqueduct, exposed to all manner of defilement, or swallow that which comes from the River Thames, impregnated with all the filth of London and Westminster, such as the drugs, minerals and poisons used in mechanics and manufactures, enriched with the putrefying carcasses of beasts and men."

BOOK REVIEWS

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M.D., President of the American Proctologic Society, Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine. Revised and rewritten. Second edition. 338 pages. Royal octavo, 172 illustrations, including four colored plates. C. V. Mosby Company, St Louis, 1912. Price, $4.00.

The first edition of Dr. Hirschman's book met with a hearty reception at the hands of the medical profession. The present edition has been entirely rewritten, forty new illustrations, including two colored plates, have been added, and the entire book has been reset. This is preëminently a book for the general practitioner. It is written in the hopes that this class of the medical profession will arouse themselves to the possibilities of this line of work and not allow the charlatan and the advertising quack to take from them work which can be done by the legitimate practitioners of medicine To that end special attention has been paid to office work in rectal diseases and the part that *local anesthesia* plays in this class of work

Life and Letters of Dr. William Beaumont, Including Hitherto Unpublished Data Concerning the Case of Alexis St. Martin. By Jesse S. Myer, A.B., M.D., Associate in Medicine in Washington University, St Louis, with an Introduction by Sir William Osler, Bt., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England. With fifty-eight illustrations. C. V. Mosby Company, St. Louis, 1912.

The reading of this handsome volume carries us back to our student days, when we read with fascinating interest the experiments on gastric secretion; gastric digestion; disordered states of the stomach; cause of hunger; sense of satiety, etc., made on Alexis St. Martin by Dr. Beaumont, as given in Carpenter's "Human Physiology." We recall the lectures on digestion with the history of St. Martin and the experiments so dramatically detailed by Carpenter, and can offer no greater tribute to Dr. Myer than to state that the reading of his book has given us great pleasure.

The work is handsomely printed, illustrated and bound. It should find a place in every physician's library, to be repeatedly read for the wholesome inspiration it will bring. Indeed, the medical profession should be very grateful to Dr. Myer for giving them so valuable a work.

Occasional Papers on the Prevention of Some Common Diseases in Childhood. By J. Sim Wallace, D.Sc., M.D., LL.D., Dental Surgeon and Lecturer on Dental Surgery and Pathology, London Hospital; Hon. Dental Surgeon, West End Hospital for Nervous Diseases. Bailliere, Tindall and Cox, 8 Henriette Street, Covent Garden, London, 1912.

This small work is concerned with the prevention of some diseases of childhood. It has chapters on diet in childhood, in school; open windows and adenoids, the prevention of tuberculosis and the care of the teeth of children It is written mainly from the dentist's viewpoint. Unquestionably oral sepsis plays an important part in the diseases of childhood. It is equally true that the medical profession have been slow to realize this and to apply measures of prevention or to advocate hygienic procedures. There is hope, however, that we are at last awakening to the fact that it is in childhood that the greatest care must be exercised. What with adenoids, hypertrophied tonsils and dental caries to combat, the children of the past have had to battle heroically for health, if not for life. Our public schools are alive to these conditions, and we have reason to hope for much benefit It is such works as this that help to bring about needed reforms. We commend it to physicians and dentists.

Napoleon's Campaign in Russia, Anno 1812, Medico-Historical. By A Rose, M.D., with Illustrations by O. Merte, taken from Yelin "In Russland, 1812." Published by the Author, 173 Lexington Avenue, New York, 1913

This work will be found entertaining as well as educational It gives a historical sketch of the Emperor's "Great Campaign," together with all that is known of the medical features There are a number of illustrations in tended to elucidate the history, which they do in a measure. Dr. Rose gives in his admirable preface to this book a fascinating picture of the Emperor, which, while orthodox, is nevertheless after all of greater interest to the average man than a history of his campaigns.

Dr. Rose's painstaking work is commendable and is of value as well from a historical as a medical point of view.

Muscle Training in the Treatment of Infantile Paralysis. By WILHELMINE G. WRIGHT, Boston School of Gymnastics, etc.

This is a reprint of the original article, which appeared in the *Boston Medical and Surgical Journal*, October 24, 1912. It is a valuable contribution to a very abstruse subject and should be widely read.

Uncomplicated Pregnancy and Labor. By FINLEY ELLINGWOOD, M.D. The Ellingwood's Therapeutist, Chicago, 1913.

This brochure is designed to present a simple scientific method of treatment of the disorders of the pregnant term, for their cure, and for the prevention of the complications of labor; to induce a normal balance of all functions, so that a labor without pain in very large part is the result. It has much to commend it to the profession, notwithstanding its elementary character.

Golden Rules of Surgery, Especially Intended for Students, General Practitioners and Beginners in Surgery. By AUGUSTUS CHARLES BERNAYS, A.M., M.D. Second Edition, Revised and Rewritten, by WILLIAM THOMAS COUGHLIN, M.D., Asst. Professor of Surgery, Chief of Clinic, St. Louis University Medical School, St. Louis, Mo. C. V. Mosby Company, St. Louis, 1913.

This small work first appeared in 1906. It was written by the late Dr. Bernays of St. Louis. Rewritten by William T. Coughlin. Its text is epigrammatic, a form most suited to impress the student, as well perhaps as the busy general practitioner. There are many references or suggestions given which it would be well for beginners in surgical work to remember. We commend this small work for its terseness and general accuracy in its Golden Rules of Surgery.

PAMPHLETS AND REPRINTS

The following Pamphlets and Reprints have been received from the Government Printing Office, Washington, D. C.

ANNUAL REPORT OF THE SURGEON GENERAL, U. S. NAVY, CHIEF OF THE BUREAU OF MEDICINE AND SURGERY TO THE SECRETARY OF THE NAVY, FOR THE FISCAL YEAR, 1912. Government Printing Office, Washington, 1912.

This will be found an interesting report, especially the statistics of disease and injuries.

SMALLPOX IN THE UNITED STATES, PREVALENCE AND GEOGRAPHIC DISTRIBUTION DURING THE CALENDAR YEAR, 1911. By JOHN W. TRASK, Asst. Surgeon General, United States Public Health Service.

ROCKY MOUNTAIN SPOTTED FEVER. By WM. COLBY RUCKER, Asst. Surgeon General, United States Public Health Service.

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ORIGINAL ARTICLES

SOME MODERN MEDICO-SOCIOLOGIC CONCEPTIONS OF THE ALCOHOL, VENEREAL DISEASES, AND TUBERCULOSIS PROBLEMS.*

Revised, Enlarged and Brought up to date by the Author for Publication in the AMERICAN PRACTITIONER.

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PART III. TUBERCULOSIS

(*Concluded from the March Number of The American Practitioner*)

My last subject is tuberculosis, although it is not the least. Statistics are just a trifle more reliable concerning tuberculosis than they are regarding alcoholism and venereal diseases, and we can say something definite of the magnitude of the problem. From available statistics it is estimated that 150,000 people die annually from tuberculosis in the United States, and the National Association for the Study and Prevention of Tuberculosis reports that more than $14,500,000 was spent in fighting tuberculosis during the year 1911. By far the largest item of expense was that for sanatoria and hospitals. For the erection of institutions of this kind, more than $11,-

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Part II, "Venereal Diseases," appeared in the March number.

800,000 was required; dispensaries for the examination and treatment of tuberculosis spent $850,000, and associations and committees in their educational campaign against tuberculosis spent $500,000. The remaining $1,300,000 was spent for treatment in open air schools, prisons, and hospitals for the insane. Appropriations of more than $10,000,000 for tuberculosis work in 1912 were made by state legislatures and municipal and county bodies.

To say that at least $50,000,000 is invested in buildings and equipments in the United States by State, municipal, and private philanthropy for the sole purpose of caring for the tuberculous poor would be a low estimate, and in this sum is not included the money invested in sanatoria for the well to do. The $15,000,000 above mentioned for running expenses for fighting tuberculosis likewise does not cover the actual money expended for the care of the consumptives of this country; still less does it include the economic loss to our country by the premature death of tuberculous individuals.

Of the estimated 150,000 who die annually from tuberculosis in the United States, I venture to say 50,000 have been bread winners, and estimating the value of such a single life to the community at only about $1,500, we have a loss of $75,000,000 each year. Another third of the estimated number, I venture to say, represents the children at school age. They have died without having been able to give any return to their parents and to the community. Making the average duration of their young lives only seven and one half years, and estimating the cost to parents and to the community at only $200 per annum, the community loses another $75,000,000 because it has not prevented a preventable and curable disease in childhood.

At the recent meeting of the National Association for the Study and Prevention of Tuberculosis, Professor Irving Fisher presented a paper entitled "A Revised Estimate of the Economic Cost of Tuberculosis." According to this estimate this country loses from tuberculosis, including losses before death and the capitalized earning power cut off, well over a billion dollars a year. Upon direct inquiry Professor Fisher told me that in this calculation he had not included the financial loss to parents and communities by the death of children from tuberculosis during school age.

I have made no attempt to represent in dollars and cents the loss of little babes who die in infancy. The suffering thus caused to parents can no more be calculated than the suffering, misery, tears, and agony of those afflicted with the disease itself or their kin. But I trust that the cold figures I have given showing the economic loss which accrues, besides the suffering which is caused in body and mind to untold numbers because of this disease, will inspire you and me to look a little closer into the subject, and if possible to inaugurate more efficacious measures, so that we may have more frequent cures and fewer relapses and above all fewer new cases.

To what degree venereal diseases are responsible for tuberculosis cannot be statistically proved. On the other hand, we know from statistics of French sanatoria for tuberculous children that 25 per cent. of the nontuberculous parents of the children admitted were alcoholic to a greater or lesser degree. In my service at the Riverside Hospital-Sanatorium, where, it is true, I do not receive the very elite of patients, but many forced-in cases, not a few picked off the street or from low class lodging houses, I have among my male patients 66 per cent. who acknowledge being addicted to the use of alcohol. Whether they became tuberculous because of alcoholism, or alcoholic because of being tuberculous I am not prepared to say. The belief that tuberculosis can be cured by whiskey and prevented by the same beverage, is still a prevalent one and needs combating.

Direct transmission of the tubercle bacilli from parent to child cannot be denied, although I admit that it is of rare occurrence. Postnatal infection, on the other hand, from either mother or father is, alas, a very frequent cause of tuberculosis. Most frequently the child of a tuberculous parent comes to this world handicapped by an inherited physiologic poverty and then being constantly exposed to a postnatal infection through the close proximity of the tuberculous parent, it has little chance to survive. If it does survive it rarely reaches adult life. If in infancy it has the misfortune to receive the milk from a tuberculous cow, its chances of dying from tuberculosis are increased by 5 or 10 per cent.

In connection with this inherited physiologic poverty as a primary cause of tuberculous predisposition, I would like to discuss for a few moments a subject which I have not seen mentioned in any of our old or modern text books on tuberculosis. This predisposition has, I believe, as much a social as a physiologic basis. In taking the history of tuberculous patients, I have made it a practice for years to always ascertain the size of the family from which the individual comes and whether he was the first, second, third, fourth, fifth, etc., born in the family. This careful history-taking has revealed the fact that the great majority of tuberculous individuals coming from large families were the younger ones. It is nearly always the latter born who contract tuberculosis.

There is no doubt in my mind that perhaps the age of the father, but most frequently the system of the mother, worn out by repeated pregnancies, can contribute to the physiologic poverty of that latter born child. Such a child comes to the world handicapped physiologically. In many instances, when the family, because of the number of children, has been reduced to a state of relative poverty, the latter born children cannot receive or do not receive either the good care or the good food which was given to the first born at a time when there were not so many mouths to feed. This condition might be considered the sociologic reason of the child's predisposition to tuberculosis added to the physiologic causes above described. I have in my records a number of such latter born individuals who had become tuberculous in adult life when there was no tuberculosis in their family, but the personal history revealed always a state of health below par from early childhood.

On the well known direct sources of infection of tuberculosis, such as sputum, bacilliferous droplets, etc., I shall not dwell in this paper. There is only one recently brought forward which might be considered, and I speak of it only because I am rather inclined to discredit it. Poncet of Paris claims to have found the tubercle bacilli in the perspiration of consumptives. His experiments have not yet been corroborated sufficiently to make it necessary to consider this possible source of infection an absolute fact. But even if it should be possible for the bacilli to pass into the sweat glands, cases from which tuberculosis is contracted from this source are surely exceedingly rare, and in view of the existing phthisiophobia, I do not think it is best to scare the public and increase the prejudice against the tuberculous by saying that the touch of their skin might give rise to the disease. Ordinary cleanliness of the skin of the phthisical patient would certainly be sufficient protection against this source of infection if it does exist.

Now, as to some of the modern medicosociologic conceptions of the ways to abolish the predisposing or antenatal causes, the postnatal infection and the frequent relapses responsible for the propagation of tuberculosis.

Let me discuss a feature which, while not exactly a new conception, will bear remention. I refer to the examination for tuberculosis of employees in offices, factories and workshops. If every employer of a large body of men would only realize what it means morally and even financially to all concerned to have his employees examined for tuberculosis and, when found afflicted, treated and cared for, he would soon follow the example of the few who are now doing this life saving work. It is interesting to note here that one of our greatest life insurance companies—the Metropolitan—has gone so far as to establish a special sanatorium for its tuberculous employees on Mount McGregor, near Saratoga. The report of this company's success as a business corporation would certainly show that this unusual care for the welfare of its employees and the thereby increased efficiency pays in the end.

To those desiring the details and results of a systematic examination of employees for tuberculosis I refer to the admirable work of Dr. M. G. Overlock of Worcester, Mass., entitled "The Working People, Their Health and How to Protect it," published by the Blanchard Press, Worcester. Mass., and the very instructive article by Dr. Theodore B. Sachs of Chicago, entitled "Examination of Employees for Tuberculosis," which appeared in the Transactions of the National Association for the Study and Prevention of Tuberculosis for 1912.

The next topic which we must deal with is that of frequent relapses. From a financial standpoint, every patient discharged as cured from a public institution who relapses, represents a useless expenditure to the community of from $200 to $500. When a patient, after six to eight months' sojourn in a sanatorium or hospital, is discharged as a cured or arrested case and is obliged to return to the same unhygienic environments or resume the same occupation which, combined or singly, were responsible for his contracting or developing tuberculosis, the chances for him to become tuberculous anew are indeed great. The patient discharged from an institution should be the subject of a most careful supervision and control. Those of us who have some experience in tuberculosis know only too well that six or eight months' treatment rarely suffices to cure the patient absolutely. Thus, if a municipality or state does not wish to spend about one third of the tuberculosis appropriation in vain, let them establish what I would like to call intermediate stations, where all kinds of occupations may be pursued, but under exceptionally good hygienic conditions, with as much outdoor life as at all possible and certainly outdoor sleeping so as gradually to harden the patient discharged from the sanatorium, and make him resistant to a new invasion of the bacilli. In the majority of instances he may then safely return to his former occupation, and with the sanatorium training and his life in the intermediate station, become again a most useful member of society and bread winner.

Dr. David R. Lyman has demonstrated that the arrested cases live better and consequently longer when following their usual trade under better hygienic conditions, because their earning capacity is better than if they had endeavored to learn a new trade.

A good way to prepare the recovering tuberculous individual for his future obligations as a worker and breadwinner is to substitute in all suitable cases the work-cure for what was formerly known as the rest cure. This, as has been shown in a number of English and American sanatoria, has been very helpful toward recovery. The medical reason of occupying the tuberculous patient by manual labor is of course to control artificially the therapeutic autoinoculation. (Marcus Paterson, "Auto-Inoculation in Pulmonary Tuberculosis." Herbert M. King, "16th Annual Report of the Loomis Sanatorium.")

In a municipal institution the work cure for patients has an additional economic advantage because, by employing the patient, the expenses of running the sanatorium are considerably decreased. The Municipal Sanatorium at Otisville was established with this point in view. It was to the genius of Professor Hermann M. Biggs, the General Medical officer of the Department of Health, of New York City, that this unique and very successful institution owes its existence. To explain more fully this one of the newer conceptions of how to deal with the great number of early and moderately advanced cases needing institutional treatment, I will quote from Dr. Biggs' own report in the New York Monthly Bulletin of the Department of Health for November, 1912. He says: "I was determined to establish an institution where the original expenditure for the housing of patients should be as small as was consistent with their physical well being and where the cost of administration was as largely as possible compensated for through the labor of the inmates.

"I felt strongly that such an institution was not only feasible and desirable, but that it would remove the ground for frequent serious criticism of tuberculosis sanatoria, namely, that the treatment by long continued rest (which, in my judgment, had been carried to too great length) often returns patients with arrested disease, but physically unprepared and unable to resume any lucrative, manual occupation. This plan of treatment also inculcates so firmly a belief in the necessity of rest and so carefully fosters the life of complete idleness, that the patients are often unhappy and discontented when compelled to return to work to earn their livelihood; they have learned to expect their families or the community to support them in idleness for the remainder of their lives. In other words, a working tuberculous person has been converted into a fairly healthy loafer."

Not to repeat the mistakes of many English and American sanatoria in thus reducing instead of increasing the bread winning capacity of former sanatorium inmates, Dr. Biggs decided that every patient admitted to Otisville should be expected to do a certain amount of useful work. On admission, each patient undergoes a rest treatment of some sixteen to twenty-one days, during which time careful watch is kept of the temperature and of its reaction towards exercise. If the patient's range of temperature is abnormal, or his general condition is unsatisfactory, he may be transferred to the Infirmary or to the "Substandard" pavilion. If, however, his general condition is satisfactory and his temperature is normal, he begins on the eighth day of his stay to take a measured walk twice a day under the direct supervision of a "Captain of the Walking Squad." Depending upon his tolerance for this form of exercise, the length and also the time of the walk is gradually increased until finally the patient walks for one hour twice a day. At the end of this time, which is usually two to three weeks after admission, he is transferred to the sanatorium proper and assigned to work in proportion to his physical condition.

The objects sought are, first, to work the patients moderately within their physical limitations, on a gradually progressive scale, and, secondly, to utilize the patient's work, as far as possible, in the conduct of the institution. Every patient, in addition to the special task which may be assigned him, is compelled to do his own housework, such as making beds, keeping his portion of the shack tidy, fetching water, etc.

There are, of course, a number of patients who, because of their physical condition, are not allowed to work or are allowed to do but very little work. To summarize, then, judicious occupation therapy is one of the important modern medicosociologic conceptions of tuberculosis.

What may we do to abolish the predisposing causes and general postnatal infections responsible for the propagation of tuberculosis? Every member of any family in which a tuberculous patient has been discovered must be examined and if found tuberculous he must be treated and cared for. Families with a tuberculous member, more than others, need sanitary supervision. If the bread winner has been removed and the family is poor, special relief must be given, for the underfed and badly housed are more prone than any others to contracting tuberculosis. We should strive to discover every possible center of infection and make it innocuous, but in thus persecuting tuberculosis we must not persecute the tuberculous.

All cases which by reason of their environment constitute centers of infection should be segregated in country sanatoria or hospital—sanatoria near cities, according to the stage of the disease. All such institutions should be made attractive, be well equipped and well managed so that patients will be content to stay. The children of these families, if tuberculous, should of course be sent to tuberculosis school sanatoria, but if only predisposed, to open air schools.

May I say right here that it is my firm conviction that the more children we send to open air schools the fewer cases of tuberculosis in adults we will have in the end. Not one of our average public schools or private schools give to the child enough outdoor life. If I had my way I would make the open air school the rule, the indoor school the exception. As is well known, blood pressure in tuberculous children as well as in adults is persistently low and it has been demonstrated beyond a shadow of doubt that the longer a patient is kept outdoors, particularly in cold weather, the more likely will the pressure be raised to and maintained within the normal limits.*

By interstate and international laws, comprising strict but humane regulations, tuberculous immigration of the poor (likely to become a burden to the community) from one State into another or from one country into another should be made impossible.†

Our social reformers will tell us: the first thing you physicians must do is to prevent the tuberculous from marrying. This is easier said than done. We know, of course, that there are a number of States in which a certificate of health is demanded before a license is issued, and recently some brave clergymen, foremost among them the Very Rev. Dean Walter Taylor Sumner of the Protestant Episcopal Cathedral of S.S. Peter and Paul, of Chicago, have declared that they would bar all marriages unless the couples were armed with a physician's certificate saying that they have "no trace of insanity, tuberculosis, or other communicable disease." If I have the quotation correct, I would object to the wording of this declaration, for if the reverend gentleman really means that he will not marry any one who has even a trace of tuberculosis, he will have a chance of performing the ceremony relatively rarely. What the old German *Geheimrath* said many years ago still holds good. I refer to the often quoted words *Am Ende haben wir all ein bischen Tuberkulose,* which might be freely translated, "After all we all have or have had a little tuberculosis."

A mere trace of tuberculosis should not bar any one from marrying and propagating, but with a distinctive lesion, likely to become acute at any moment, or with a very strong predisposition, marriage and procreation should be deferred until the prospective husband or wife is cured. I cannot speak for the experience of others, but as for myself in a good many years of consultation practice, I have had occasion to prohibit marriage a good many times. Sometimes those who had sought my advice obeyed it, more frequently they did not and I have now come to the firm conviction that neither State law, clergyman's protest, or physician's advice will prevent people from coming together as husband and wife if they want to. I grant that there are exceptions, but these exceptions are few. Of course, I do not wish to say that the enactment of such laws and the protests of clergymen regarding the marriage of the tuberculous are not of inestimable educational value. It will set people to thinking.

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*B. Raymond Hoobler, "Effects of Cold Air on Blood-Pressure," Amer. Jour. of Diseases of Children, Nov., 1912, Vol. 4.

†"The Immigration of the Tuberculous into the United States; a Problem for Every Nation," Medical Record, July 13, 1912.

A somewhat easier task than prohibiting marriage is it when we are confronted with a tuberculous married man or woman whom we desire to convince that as long as he or she is actively ill with the affliction they must not have children. Such advice the average tuberculous patient is willing to take, but of course failures are frequent. What are we to do? We spent last year nearly $15,000,000 for the cure and prevention of tuberculosis in the United States and we still lose annually 150,000 people from consumption, which totals an economic loss of one billion dollars. This will continue as long as we allow conditions to prevail as they are now almost universally.

Concerning another phase of the problem under discussion, that is to say the advisability of emptying the pregnant uterus of a tuberculous woman, each case must be judged according to its own merits. Heretofore I have assumed the attitude of noninterference in early or very moderately advanced tuberculous cases of pregnancy; but I am willing to confess that I am more and more inclined to the emptying of the uterus in all cases where a positive unhealed tuberculous condition exists. I do not stand alone in this seemingly radical attitude. Schottelius and Schaute, in a recent very instructive article on "Abortus artificialis und Tubensterilisation wegen Lungentuberkulose" (Beiträge z. Klinik d. Tub., Band 20, Heft 2), have come to the conclusion that in view of the uncertainty of the prognosis in a tuberculous pregnancy the emptying of the uterus is indicated in every case. Carefully gathered statistics show that in 75 per cent. of positive cases of tuberculosis the pathological process increases rapidly during pregnancy, and particularly after delivery, toward a fatal termination. When, after careful counsel with a competent consultant for internal diseases and an experienced obstetrician or gynecologist, the diagnosis of tuberculosis and pregnancy is certain, the careful and aseptic emptying of the uterus by an expert is virtually connected with no danger. The noninterference means a mortality of 75 per cent. of the mothers and the birth of a tuberculous or predisposed child. It goes without saying that in the majority of these cases the ligation of the Fallopian tubes at the same time or soon thereafter to avoid further pregnancies is indicated.

Prevention of a tuberculous conception, the limitation of children in a tuberculous family, the emptying of the uterus of a tuberculous mother, otherwise doomed if not to an early death to prolonged invalidism, the prevention of tuberculous or predisposed children coming to the world not only handicapped by disease, but also by poverty and want and sure to become a burden to the community, is not race suicide, but race preservation.

Has the time not come for a radical and energetic policy for dealing with the various phases of the tuberculosis problem including the procreation of a tuberculous race? Statesmen, lawmakers, city fathers, school authorities, employers, philanthropists, physicians, and the people at large, all can help by a united effort in this holy war against a common foe more terrible, more destructive, more costly than any enemy (war or other plague) known in the history of men.

Besides pleading with all the earnestness I am capable of for all means to combat tuberculosis, for which others and I have pleaded before, such as early diagnosis, compulsory registration, periodic physical examination of all school children and college students, the establishment of maternity sanatoria, children's sanatoria, sanatoria for early cases, of which we have now only sufficient to place one patient of every 400 who need sanatorium treatment, hospital sanatoria for the advanced cases, the forcible segregation of all advanced or early cases when by their condition or conduct they are a menace to the community, dispensaries, labor bureaus for the tuberculous, agricultural and horticultural colonies, better housing, better home hygiene, better ventilation in factories, stores, offices and workshops, pensioning of widows with children by the State, State insurance against accidents, old age and disease, including tuberculosis, periodic physical examination of all employees, official and private for tuberculosis, supervision of food supplies and housing, abolition of child labor, more open air schools and colleges, utilization of city roofs for playgrounds, more outdoor play for all children, and education in popular hygiene for all people, I plead with you for sterilization of all tuberculous male and female patients who are willing to submit to this operation. I would make vasectomy obligatory for any man who is acutely tuberculous and insists on marrying. I would insist upon the ligation of the fallopian tubes for all female patients in the same situation. I would teach even slightly affected tuberculous parents or married people not only all the details of prophylaxis so that they may not infect each other, their children, or others, but would make it also a sacred duty to teach them how not to procreate while either one of them is acutely afflicted with the disease. To this end I would go so far as to urge parents, even when they feel themselves apparently well and strong and recovered from a tuberculous lesion, not to decide on having a child without both having submitted themselves to a careful physical examination. Only when found in real good health as a result of a careful examination by a competent practitioner, should they feel that they have a right to procreate a race.

I have already expressed my opinion to the effect that for the uncured syphilitic and the unredeemable alcoholic the procreation of his type should be made impossible. That I dare to include in this class the actively ill tuberculous individual may sound revolutionary and to some it may seem a shock, but I know that many in their heart of hearts will agree with me. To make of the human race beings strong in health and vigor, sound in mind and body, free from unnecessary care and preventable diseases, should be a religious duty of the physician of this age.

As one of the newer problems in our fight against tuberculosis, I would be remiss in my duty did I not mention the all absorbing question of the high cost of living. Not to have enough food or not enough nutritious food predisposes to tuberculosis. Every phthisiotherapeutist knows that ample food and good food is one of the essentials in the successful treatment of tuberculosis; and furthermore, those of us who are interested in the treatment of the tuberculous poor in institutions or at home, know what a problem it is nowadays to make both ends meet, and yet provide enough nutritious food for those under our care.

I am not enough versed in statesmanship or politics to suggest a remedy along this line. The only thing which appeals to me likely to serve as an amelioration or perhaps even a rational remedy for the situation is to follow the advice of men like Mr. James J. Hill,* Professor Cook, of Yale,† and the numerous experts of our Agricultural Experimental Stations, philanthropists and generous minded citizens in general should coöperate with these experts to make agricultural life profitable and also pleasant. When by the provision of sound and sane social enjoyment and intellectual advancement for the young generation of farmers can be made as attractive to young people as is living in the city, when the farmer will have been taught to double and treble the yield of his products,

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*Letter to the New York *Times* of August 24, 1912.

†"Seven Blades Now Where One Grew," Professor A. S. Cook, New York *Times*, Aug. 24, 1912

and when transportation to the consumer will be made easy, farming will become an occupation to be sought by many. Its returns will be profitable and the consumer will receive the products which he needs at a cost within his means.

To end a paper of this kind with figures may seem tedious, but we are pleading at this time for a Federal Department of Health, whereby the problems with which I have endeavored to deal, although only too inadequately, shall receive the deepest study and sound consideration with a view to their solution.

As stated elsewhere, when discussing the alcoholic problem, the people of the United States spend annually $4,000,000,000 for strong drink, and it costs $20,000,000 to take care of the drunkards. This expenditure does not include the maintaining, often for a lifetime, of 25 per cent. of all the insane, epileptic, or feeble minded whose disease may be traced to alcoholism; nor the maintenance of 25 per cent. of all criminals in the workhouses, reformatories or prisons, who committed their crimes under the influence of alcohol. It is a safe estimate when we say that the cost of taking care of the individuals who have become physically or morally diseased, or otherwise incapacitated, because of alcoholism, exceeds the billion dollar mark. The cost of venereal diseases is beyond calculation. A large percentage of the venereally diseased land in the insane asylum and thousands of little children are rendered blind and helpless forever. The human sorrow caused by the venereal peril is far greater than all the money sacrifice, and the same may of course also be said of alcoholism and tuberculosis. To help to diminish the sorrow and suffering caused by all these diseases, to decrease their virulence, to study their cure, to help to save to the commonwealth, that is to say to the people at large the thousands of millions of dollars which these and other preventable and curable diseases cost, we have asked for the establishment of a Federal Department of Health. This is the most important modern medicosociologic conception which we have in this country at this time and without the realization of which we shall be unable to solve the three great problems before us.

May I conclude this all too lengthy paper with one more thought? After having given you some of the modern medicosociologic conceptions of the three great diseases of the masses, let me state as "finale" my conception of the modern physician, as I see him rising before me. The physician of the future will have chosen his profession because of his devotion to science and humanity; he will be physically and mentally equipped for the task. Our social fabric, politics of State and Nation, will have changed and our material wealth, because of greater honesty, greater efficiency, and fewer untimely deaths, will have increased at least to such an extent that the naturally gifted boy or girl, be he or she of poor or rich parentage, who feels in himself or herself the divine calling to be a physician, may be educated in the State University at State expense. After careful preparation and study and two years of hospital service as intern, a remunerative position will be assured to this well-trained physician. He will take care of the sick as an officer of the State, paid by the State and not dependent on the fees received from patients. He will help to save the Nation an expenditure of untold millions by guarding the people's health, by preventing epidemics and endemics, by teaching the people how to live healthy, happy lives and how to be strong and vigorous in mind and body—men and women in every respect an image of their creator, noble citizens of a great republic. This because the ideal physician will at last have come to his own, a conqueror of disease, a saviour of his fellowmen, himself an example of the highest type of man. Let us hope that he may appear on the scene before you and I lay down our arms

SOME GENERAL REMARKS UPON THE SENSE OF HEARING, ESPECIALLY FROM A HYGIENIC STANDPOINT*

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To say that a profound study leading to comprehensive knowledge of the fundamental operations of an organ is a necessary precedent to intelligent efforts to influence its pathology is to state a truism too obvious to require emphasis, and too generally accepted to need to be urged.

I should, therefore, hesitate even to repeat it in this connection, were it not for the fact that the function which is the subject of this paper is one that, considering its importance and the vast consequences of its loss, and especially considering when lost the deplorable failures in attempts to effect a restoration, often simply because of ignorance of fundamental principles, the function is in this case, I say, too little studied and as yet far too imperfectly understood

When treatment is instituted, as it often is, based upon erroneous principles, it is no wonder that it should prove not merely without benefit to the patient, but at times even to his serious detriment; and it is only natural to expect that under such conditions the sufferers must often resort to quacks and charlatans, who, it is well known, flourish in this field of practice as in no other.

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*Read before Medical Society, Second District of Columbia, Nov. 20, 1912.

Apart from the frequent occurrence of failure where success should have followed, the most potent factor responsible for the popularity of the aural quack is that occasionally some of us have persisted in treating certain cases, otosclerosis, for example, which in the present state of our knowledge ought to be recognized from the beginning as hopeless.

For does not the attempt on the part of the physician imply a possibility of benefit, and when he has failed, is it but natural that the unfortunate sufferer, grasping for a straw, should be attracted by the alluring advertisement of the impostor?

The duty of the otologist, therefore, in the premises is first of all to equip himself with all available information with respect to his specialty; second to give the patient the benefit of a painstaking, conscientious examination, and then when convinced that the case is one that cannot be influenced by medical skill, to have the courage frankly to admit it, at the same time so advising the patient and warning him against the delusive promises of the ever present quack.

It is indeed a lamentable admission that deafness in certain forms and certain stages is beyond the help of medical science, but it should serve to emphasize on the one hand the necessity of greater attention to its prevention, and on the other to constitute a reason for renewed efforts in the discovery of better methods of treatment.

While in the abstract the great importance to man of the faculty of hearing is generally admitted, it seems, nevertheless, to require the direful personal experience of its loss to come to a full realization of the significance of its unimpaired possession.

It is indeed a general observation that the deaf do not excite in us a sympathy commensurate with the seriousness of their deprivation.

This is probably due to the fact that the defect is one that is neither obtrusive nor marked by physical suffering.

But to the individual himself it is certainly a source of much mental anguish, and it is small wonder that he becomes reticent, sensitive, morose, as he finds himself day by day less able to distinguish the familiar voices of family and friends, and day by day sees slipping from him the pleasures formerly derived from the concord of sweet sounds; as he discovers, in fact that he is gradually but surely being cut off from entering into the social enjoyments of life, which he sees in full force around, and which but for this imperfection he feels himself fully capable of enjoying.

As the auditory organs constitute one of the chief paths by which the brain is supplied with the sensations of the external world, its loss means an inhibition of great moment in the complete evolution and development of the psychic faculties.

In its true sense, hearing is a function that exists in only the higher species of animal life.

It is probably entirely lacking in all invertebrates, and even in some of the lower vertebrates, notwithstanding the fact that in some instances these animals are capable of producing sounds.

This statement we realize is quite at variance with the common belief, and at first thought must appear unreasonable; for it is very natural to infer that animals which give forth sounds do so to communicate with each other, and, therefore, must be endowed with the corresponding function of hearing to enable them to perceive them. But this assumption arises from a faulty conception of the real meaning of the term.

Hearing implies something higher and more subtle than the mere perception of vibrations as such.

For in order that there shall be hearing in its true sense the periodic vibrations must become, as it were, continuous and homogeneous, giving rise to an impression of tonality.

There are not wanting observers who pretend to have seen evidence in animals so low in the scale as to be devoid of even the rudiments of a cochlea the most extraordinary appreciation of musical notes.

You may have read the interesting account by Raclan of how he became attracted by the significant behavior of a spider which he was able to watch while attending a concert at Munich.

He observed that whenever the violin executed a solo, the spider descended from a chandelier, always to reascend instantly the whole orchestra began to play.

The apparent perception of sound by this insect can at any time be demonstrated by placing the foot of a vibrating tuning fork in contact with its web.

He will emerge from his hiding place, hesitate perhaps for a few seconds, to satisfy himself of the location from which the vibration emanates, then hurry with eager steps to seize the instrument, which he very naturally takes for his usual prey.

You are also probably familiar with the tradition that in order to be successful in catching fish, it is essential to observe profound silence, and it has indeed been demonstrated that certain crustaceans can be made to react to notes sounded in their vicinity.

To conclude, however, that these animals hear is to conclude that a cochlea and an organ of Corti are unnecessary for the appreciation of sound.

It is not the sense of hearing, however, that they possess, but rather what Bonnier calls a sense of *seisesthesia*, that is to say, the capacity to perceive the periodic vibrations of pressure to which a sounding body gives rise, without, however, the impression of sonorous tonality.

In each case it is adequate to the purpose. When the fly becomes enmeshed in the spider web, the buzzing sound which it emits in its attempt to escape produces vibrations of the fibers of the web.

As the spider comes forth and throws his weight into the midst, the increased tension produced renders the fibers still more favorable for the transmission of the vibrations and enables the insect to discover with greater certainty the situation of the prey.

But it is guided not by a sense of hearing, for it has no organ of hearing, but rather by a keen sense for the appreciation of vibration felt as a sort of trepidation.

It is the same with the fish, which has, however, a remarkable development of the canals of the labyrinth and of the lateral organs, directed to all points and beautifully adapted to perceive the periodic vibrations reaching them through the watery medium in which they live and move. But fish are no doubt as deaf as they are mute, and what to us is sound is to them only a sense of trepidation.

Hearing in its true sense begins with the amphibia, in which the cochlea now first appears as a rudimentary organ.

The fully developed cochlea as we find it in man is a marvelously constructed organ, adopted preëminently to the transmission and perception of sound waves, reaching us through an atmospheric medium.

The connecting apparatus will be seen to have many ingenious features contrived to transmit the sound waves in such a way that they shall come with just the right amplitude periodicity and form to impress the delicate and sensitive hair cells of Corti's organ.

Thus we see the drum membrane, with its peculiar conical shape, designed to efface its self tone, and a tension varied from center to periphery to avoid the emphasis of one tone over another in the act of transmission; thus we see the chain of ossicles attached thereto for the purpose of acting as a damper and preventing after vibrations, and the articulation of one little bone with another to form a perfect angular lever, intended to convey the vibrations with the necessary intensity to the oval window, and further we find acting upon each end of the little chain muscles, whose purpose is probably to vary the tension of the oscillating medium, and under circumstances to act as a check against vibrations of excessive amplitude.

Just how the receiving apparatus fulfills its part in the operation of hearing is a much disputed but still unsettled question.

The theories on the subject divide themselves into two groups, according to whether they consider that the cochlea acts as a resonating organ or as a register.

The former, which is famous under the name of the theory of Helmholtz, supposes the fibers of the basilar membrane to behave very much as do the strings of a piano, which, as we know, will vibrate in sympathetic resonance when a pure note is sounded above them.

The normal ear is capable of perceiving variations of pitch due to vibrations ranging in frequency from sixteen up to thirty or thirty-five thousand per second.

It has been anatomically demonstrated that the fibers of the basilar membrane increase gradually in length as they diminish in size and strength from the base of the cochlea to the apex. The Helmholtz theory supposes, therefore, that the high tones are perceived in the base of the cochlea, where the fibers are shortest and their tension greatest and low tones only near the apex, where we find the fibers of greatest length, with least tension.

The register theory, sometimes called the sound picture or telephone theory, has been ably championed by Rinne, Rutherford, Hurst, Ewald, Bonnier and others. According to this theory, the entire basilar membrane is supposed to vibrate either as a telephone plate or as an elastic membrane, and the different tones, instead of being disposed of in the cochlea itself are transmitted in their original patterns directly to the brain, and there analyzed.

The Helmholtz theory is a rather attractive explanation of the striking anatomical peculärities in the structure of the organ of Corti, and is, moreover, partially substantiated by clinical data. Certain weighty objections, however, have been urged against it.

One is that it is difficult to conceive that these fibers, immersed as they are in a dense liquid and damped by layers of cell cement, could have the vibrating properties attributed to them, and another, that while the fibers have been estimated to vary in length only from one to twelve, the proportion of variations in the tonal scale is not less than one to two thousand.

As to the telephone or register theory, the difficulty is in supposing the nerve fibers to be capable of transmitting vibrations varying in frequency from 16 to about 30,000 per second, and secondly, its failure to account for the complicated and significant structure of the cochlea.

The organ of Corti is unique not only in the intricacy of its structure, but also in the delicacy of its adjustment.

Resting delicately suspended upon the basilar membrane, with the fine hairs of Corti's cells sensitive to the infinite variety of vibrations which transverse the fluid medium in which they float, it may be likened to a caterpillar clinging to the outer edge of the spiral lamina as it winds from base to apex.

The terminal fibers of the auditory nerve are unlike any other of the body in the manner in which they run exposed in the labyrinthine fluid as they pass to entwine themselves around the base of Corti's cells.

Nature, with an apparent appreciation of the delicacy of this organ has placed it at a considerable depth from the outer surface of the skull and surrounded it with the hardest, most compact osseous structure in the body—the petrous portion of the temporal bone.

Notwithstanding this, we are sure that it is very easily and very frequently affected by influences coming both from without and within.

I think the harmful effect of loud and disagreeable noises upon the peripheral sense organ of audition is by no means generally realized. The nerve deafness which we find among boiler workers, and the concussion of the labyrinth, with sometimes complete sudden deafness, which is known to occur from too close proximity to explosions and powerful detonations, are proof of the effect they can have upon the auditory papilla. I am convinced that many times these delicate nerve structures are being injured by daily exposure to jarring, clanging and otherwise disagreeable noises when the connection is wholly unsuspected by either physician or patient; and as such influences, in addition to injuring the hearing, are likely in time to react unfavorably upon the general system, their discovery and removal is important.

As might be readily inferred from the nature of the peripheral organ of audition and its exposed situation in the labyrinthine fluid (itself subject to frequent alterations), it cannot be otherwise than that it must be readily affected from influences originating within.

The reason we do not always discover these effects is, that slight alterations of hearing will generally go undetected. Loss of hearing obtrudes itself upon the notice only when it proves insufficient for the ordinary transactions of one's daily life, and for which fortunately the normal individual has usually enough, with a little to spare.

Whether a slight loss, therefore, in the outer zones of the field of hearing will be felt or not depends upon whether the hearing was previously normal or already considerably reduced.

An individual who has a capacity to hear ordinary conversation at forty feet may lose as much as ten feet without being conscious of it, but a loss of ten feet to one whose hearing was previously only twelve will constitute an inconvenience that will not merely be noticed, but that will be most seriously felt.

Besides, if the loss is confined to one side, the other remaining normal, it may go on to almost complete extinction without being discovered, especially if the individual affected happens to be an unobservant one.

These considerations are in a measure responsible for much of the opprobrium unjustly cast upon the practice of otology, because they mean that the patient, instead of coming to consult the otologist at a time when his hearing defect was remediable, comes only when the condition is of long standing, very advanced and correspondingly refractory.

Furthermore, otology is charged with failure to cure a recent case, though in reality it is probably an old one recently discovered.

It would be apropos to mention in this connection a test recently suggested by Bonnier, which he regards as infallible for the discovery of threatened deafness.

It depends upon the phenomenon of exaltation of contact hearing in beginning of ear disease.

If in the case of an individual with a perfectly normal ear you hold the foot of a vibrating, deeply toned tuning fork against the elbow, wrist, shoulder, clavicle, knee or ankle, the vibrations are felt as a trepidation, but not heard.

In case, however, progressive deafness has laid its finger upon the individual, though as yet in but the gentlest way, the fork will be more than felt, it will be actually heard; there will be, in other words, tonal perception.

As Bonnier has remarked, normal hearing is preëminently adapted to the perception of sounds reaching the ears from without, not from within.

When, therefore, internal audition is increased, we have a percussis pointing to a disturbance in the conducting apparatus which may be manifest at a very early stage, before indeed any impairment of aerial conduction has been observed.

Despite the general interest which has been displayed in recent years in the otherwise thorough systematic examinations made for the discovery of ills and physical defects among the school children, we are of the opinion that the ear as an organ of hearing has been somewhat neglected; for when aural examinations are made, attention as a rule is confined to the discovery of material evidence of disease (as the presence of a suppuration), rather than to the discovery of deafness.

We do not, for instance, see enforced such systematic attempts at the measurements of auditory acuity as are practiced for the purpose of discovering visual defect, though the former is certainly not less important than the latter.

It is a fact worthy of notice that the impairment of the hearing faculty in the early educational life of the child constitutes a most serious impediment to the full and perfect development of his intellectual capacities.

The deaf child is compelled to expend greater energy in the concentration of attention, and then fails often in reaping the profit from the instruction in the class room, as may his normal hearing companion.

There is no doubt that many a pupil classed as stupid and inattentive by its teacher is in fact only deaf.

Reports from various countries at various times, made according to different systems, are all in agreement in the fact that deafness to a degree constitutes a handicap in the educational progress of a child and is found in much greater proportion than would naturally be suspected, being, in fact, on an average of nearly one-fourth of all children attending school.

When it is considered, on the other hand, that these cases of deafness arise for the most part from simple conditions in the nasopharynx or from catarrhal and suppurative inflammation amenable to treatment, and on the other that when neglected they have, unhappily, a tendency to progress and especially to become transformed into an adhesive or a sclerotic process of a peculiarly unyielding character, the importance of their early recognition and early correction cannot be too strongly emphasized.

The chief purpose of these few remarks will be fulfilled if they have served to stimulate a little keener sense of a function which it cannot be denied, is of the utmost importance to man, regarded either as a sociologic unit or an individual seeking happiness and success; and if they have tended to awaken a livelier appreciation of its hygienic importance, which rests not merely, as we have pointed out, upon the fact that its impairment is of much more frequent occurrence than is generally realized, but in a great degree upon the circumstances, that being insidious in its outset special care must be taken to prevent its eluding discovery; and being progressive in its course early correction is necessary to prevent its entering upon a stage where treatment may prove unavailing.

In conclusion, it would indeed be unfortunate if our confession of helplessness in a certain group of cases should be construed by any one to mean that ear diseases in general have little to hope for from the science of otology.

The truth is quite to the contrary, and the argument urged against delay is based not only upon the inefficiency of treatment of deafness of long standing, but as well upon the success which marks remedial measure in the early stages.

Practically all cases in the beginning can be decidedly benefited, and probably in as many as two thirds the cure will be complete and permanent.

If it were necessary to produce testimony in support of what otology is doing, we need only cite the very decided benefit which follows Eustachian tube therapy, and especially the brilliant results obtained in suppurative diseases of the middle ear and adnexa, not only as regards hearing, but in the removal of cerebral complications sometimes threatening the life of the patient.

So we may say, therefore, that our failure in a certain class of cases is balanced by our success in many others.

As regards the future of these intractable ones, great encouragement, it seems to me, ought to be derived from a consideration of the fact that such a large proportion of cases of deafness depend upon diseases affecting only the conducting portion of the auditory apparatus.

As is known, we are able to determine definitely by functional tests whether the lesion is located in the middle or the internal ear.

When we discover in the case of a deaf ear, notwithstanding that air conduction is very greatly diminished, that the foot of a tuning fork held vibrating against the mastoid process is heard as long or longer than normal, we conclude that the internal ear is healthy and perfectly capable of performing its part in the perception of sound, if only the waves can be brought with undiminished intensity to the terminal filaments of the nerve.

This is, indeed, the actual finding in many cases of even very advanced deafness.

We are familiar, too, with the peculiar and paradoxical phenomenon known as paracus Willisii, which means the capacity of people with certain forms of deafness when in the midst of rumbling noises, as riding on a train, to hear with perfect ease, and at times better than their companions whose hearing is rated as normal.

This likewise is but an evidence that the ear is deaf only because under ordinary conditions the transmitting apparatus is incapable of performing its duty of delivering the vibrations to a healthy nerve.

The trouble, then, is comparable to that which we have in the case of optical defect in the eye. The retina is perfect, but the lens is unable to focus properly upon it the rays of light, which are similarly due to vibrations, only of much higher periodicity than in the case of sound.

But if the otologist seems to have failed to have given the relief that the oculist has done in apparently analogous cases, it must be remembered that the former has set before him a task of much more ambitious nature.

The oculist has met the indications by the employment of glasses, but the otologist could not rest satisfied with the adaptation of any artificial acoustic apparatus intended to convey the sound with greater intensity or clearness, no matter how perfect, therefore he has not concentrated his energies in this direction.

The reason for this is that he is dealing with a condition that is progressive, therefore his aim must be to cure and correct the disease, or at least stay its progress.

Considering the energies that are being centered upon this high purpose by the best minds in the profession in all parts of the world, is it too much to hope that the next decade or two will solve this the hardest problem of otology, and show us not merely how to prevent deafness, not simply stay its hand, but how actually to get rid of it even though advanced and due to disease of the most obdurate type?

INOCULATION OF THE FIELD FORCE OF THE UNITED STATES RECLAMATION SERVICE WITH ANTI-TYPHOID VACCINE

By Hugh Arbuthnot Brown, M.D.

Washington, D. C.

In order to store, divert, and properly utilize water for irrigation purposes, the United States Reclamation Service employs large forces of men for varying periods of time in the construction of reservoirs, dams, canals, and other works in the arid and semiarid regions of the West. Where a large dam is being built, as at Arrowrock, Idaho, or Elephant Butte, New Mexico, it is, of course, necessary to maintain construction camps for the laborers and other employees. These camps frequently have a permanency of three or four years or more, with a population of several hundred men. At other points, where construction work is largely completed and the projects are more or less on an operation and maintenance basis, the force is greatly decreased, and only enough men are retained to operate the system efficiently and make necessary repairs.

In June, 1912, the field force of the Reclamation Service comprised 6,388 employees, classified as follows: Under the classified civil service, 419; holding registered positions,* 1,235; others (mainly laborers), 4,734. There were in addition 626 employees of contractors working on reclamation projects, while 80 persons were employed at the central office at Washington, D. C. This force was distributed over 27 projects and field offices in 16 States. Where the number of employees warrants it, physicians are employed, either under contract or holding civil service appointments.

Although practically no cases of typhoid fever had been reported to the Washington Office since the organization of the field force, it was felt that, in addition to other sanitary precautions, the prophylactic value of inoculation with antityphoid vaccine should not be disregarded. In July, 1912, arrangements were accordingly made with the Surgeon General of the Army to furnish the Reclamation Service with specified quantities of the prophylactic, as requested. This vaccine was prepared in the Army Medical School under the supervision of Major F. F. Russell.

It was, of course, realized that it was not possible or practicable to compel the employees to submit to inoculation, and every effort was, therefore, made to present the matter to them in such a way as to secure as many volunteers as possible. The first step toward securing this end was the publication of the following article in the August issue of the Reclamation Record, the official publication of the Service:

"In addition to the sanitary measures now being employed by the Reclamation Service for the prevention of outbreaks of typhoid fever in the various construction camps, consideration is being given to the question of urging all field employees of the Service to be vaccinated with antityphoid vaccine as a further precaution.

"An outbreak of typhoid fever is liable to occur even where the utmost precautions have been taken to secure the highest degree of sanitary excellence. This is due to the fact that among large bodies of men so called typhoid 'carriers' are often found (that is, men who have had the disease at some previous time, who are apparently in good health, but whose bodies still harbor typhoid germs); and to the fact that infection may occur from imported cases.

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*Registered positions include all those requiring by their nature only non-educational tests for positions.

"The results obtained by the Army in the use of antityphoid vaccine indicate that a high degree of immunity from typhoid, lasting for at least two and a half years and probably longer, may be secured by this treatment. During the Spanish-American War, with the sanitary measures that followed, which did not include vaccination for typhoid, nearly one fifth of the soldiers in the various national encampments in the United States contracted typhoid fever. On the other hand, during the period of the maneuvers at San Antonio, Texas, in 1911, in addition to other sanitary measures, all the soldiers were compulsorily vaccinated with antityphoid vaccine, and, although they had free access to the cities of San Antonio and Galveston, where typhoid was more or less prevalent, only one case of the disease developed out of a mean strength of nearly 13,000 men, and this case occurred before the third dose of vaccine had been administered.

"The treatment is simple and the reaction in the majority of cases is much less severe than that attending vaccination for smallpox. After sterilization of the skin with tincture of iodine, the vaccine is injected into the connective tissue under the skin of the arm, about midway between the shoulder and the elbow. Three injections are made at intervals of ten days. The results obtained by the Army in the administration of about 130,000 doses show that ordinarily 'there is a local reaction consisting of a red and tender area about the size of the palm of the hand, which usually subsides within forty eight hours.' If a general reaction is present at all it may be manifested by headache, malaise, slight fever, etc. Among over one hundred persons in the Geological Survey, who were recently vaccinated, only about half a dozen experienced any severe symptoms. Similar results were obtained among the employees of the Land Office who recently received the treatment.

"The necessary arrangements have been made to secure from the War Department, a supply of vaccine sufficient to vaccinate all volunteers, and it will be sent to the various projects, with complete instructions as to its administration, as soon as the number of volunteers is known. It is hoped that every employee of the Service will volunteer for treatment."

Shortly after the distribution of the Record each supervising and project engineer received copies of Circular No. 7 of the Surgeon General's Office, War Department, describing the method of administering the treatment, and of Major Russell's article, "Results of Antityphoid Vaccination in the Army in 1911, and its Suitability for Use in Civil Communities,"* together with copies of the fol-

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*F. F. Russell, *The Journal of the American Medical Association,* May 4, 1912.

lowing circular, which they were directed to post in conspicuous places on the various projects.

PREVENT TYPHOID FEVER BY VACCINATION

"Careful consideration has recently been given to the subject of vaccination for the prevention of typhoid fever, and the conclusion has been reached that it is the duty of all field employees of the Reclamation Service, not only in their own interest, but in the interest of the Service as well, to make use of this additional precautionary measure. Whether an employee is vaccinated or not will depend upon his own volition, but it is hoped that after considering the following facts, there will be no hesitancy on the part of any one in volunteering to take the necessary treatment.

"1. Typhoid fever may be contracted where the highest degree of sanitary excellence prevails. Every precaution may be taken to insure a pure water supply, clean milk and vegetables, and to exterminate the so called 'typhoid fly,' and yet typhoid may start from infection through a chronic 'carrier,' that is, a person who has had the disease at some previous time, who is apparently in the best of health, but whose body still harbors the typhoid germs; or it may start from an imported case. Under present conditions you are never safe.

"2. If you contract typhoid fever, it means that:

a. You may die.
b. If you live you will be incapacitated for work for from six weeks to two months or longer.
c. You have paid to your physician and nurse more money than you could afford.
d. The Reclamation Service in the meantime has had the added expense of employing some one else to take your place.

"3. The latest method known to medical science for conferring a high degree of immunity against infection from typhoid is that of vaccination.

"4. In healthy persons this is a harmless procedure. At ten day intervals a small amount of vaccine is injected under the skin of the arm until three injections have been made.

"5. As a result there is ordinarily a red and tender area at the site of the injection lasting about forty eight hours. There may also be a slight headache or a general feeling of discomfort. Severe symptoms are almost unknown and when they do occur are followed by no serious trouble.

"6. The immunity conferred lasts certainly two and a half years and probably longer.

"A sufficient supply of vaccine, with explicit instructions as to its administration, has been secured from the Surgeon General's Office of the War Department, and will be sent to the various projects as soon as the number of volunteers is known. In case there is no

Service physician on a project, arrangements will be made with the nearest competent local physician to make injections.

"In the meantime every employee of the Service is requested to give this matter most careful consideration and to voluntarily submit to this simple and harmless preventive treatment, when called upon to do so.

"Bear the following in mind:

Typhoid fever can be prevented.
You can aid by being vaccinated.
Prevention beats the physician and undertaker.
Healthy persons may have typhoid tomorrow.
Only those vaccinated or who have had typhoid are immune.
Immunity lasts three years.
Don't hesitate. Volunteer today."

It was also suggested that the engineers and physicians aid the cause as much as possible by giving informal talks on the subject to the employees. It was not expected that many of the laborers would volunteer for treatment, but it was hoped that a large proportion at least of the classified and registered employees would do so.

As a result of these measures requests for a supply of vaccine sufficient to inoculate over 500 persons were received from sixteen

Name and title of patient	*Project*

	Date	Reaction absent	Reaction mild	Reaction moderate	Reaction severe
First dose	....	....	....	....	....
Second dose..........	....	....	....	....	....
Third dose	....	... .	....	....	....

(CHECK REACTION NOTED.)

Reaction absent........	Local, but no general reaction.
Reaction mild..........	Temperature above normal and below 100; or normal temperature with headache and malaise.
Reaction moderate.....	Temperature between 100 and 103.
Reaction severe........	Temperature 103 or over.

Remarks regarding severe reactions, if any :.........................

Name of Physician

projects, the number of volunteers from the various projects ranging from half a dozen to over one hundred.

At the same time that the vaccine was forwarded to the project requesting it, a letter was sent calling attention again to Circular No. 7 of the War Department, describing the method of inoculation, contraindications, the care of the prophylactic during treatment, etc., and the blank form on page 192 was enclosed, to be filled out for each person receiving the treatment and returned to the Washington Office. The classification of reactions is that suggested by Major Russell.*

Receipt of the reports regarding reactions has been delayed by various causes. Several of the projects sent in additional requests for vaccine for the inoculation of men who presumably had refrained from volunteering until they had noted the effect of the treatment on others. In many instances outside physicians have performed the work of inoculation, and it has been difficult or impossible to secure reports from them promptly. Other reports are incomplete, because of transfers to other projects or separation from the service. In still other cases employees, after volunteering for treatment, found that the distance to be traveled to secure the services of a physician was so great that they became discouraged and paid no further attention to the matter. Up to the present time reports regarding the reactions in 138 cases have been received from nine projects. These are summarized in the following table and accompanying diagram:

	Number of patients	REACTION			
		Absent	Mild	Moderate	Severe
First dose..........	138	76	53	7	2
Second dose........	138	87	41	8	2
Third dose	129	116	13	0	0
Per cent.					
First dose.	100.0	55.1	38.4	5.1	1.4
Second dose..........	100.0	63.1	29.7	5.8	1.4
Third dose	100.0	89.9	10.1	..	..

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*The Prevention and Treatment of Typhoid Fever with Antityphoid Vaccine, *Boston Medical and Surgical Journal*, January 5, 1911.

Of the total number of patients 129 received the complete treatment, consisting of three inoculations, the first dose containing 500 million bacteria, and the second and third one billion each. The four men who experienced severe reactions continued the treatment and in each case the report stated "Reaction absent," following the next inoculation. The reactions and the statement of the attending physician in each of these four cases are given below:

Case A—Reactions: mild, severe, absent. Patient confined to bed for 30 hours, temperature 103, malaise, headache, and prostration. Patient had typhoid in 1890, but was in good physical condition at time of inoculation, and does not recall any circumstances which may have had some effect in producing the severe reaction.

Case B—Reactions: severe, absent, absent. Temperature 103, malaise and prostration; 24 hours not at work. Patient has never had typhoid, was in good condition at time of inoculation, and does not recall any circumstances which may have tended to produce the severe reaction, except that on the day following the inoculation he took a long drive in a spring wagon.

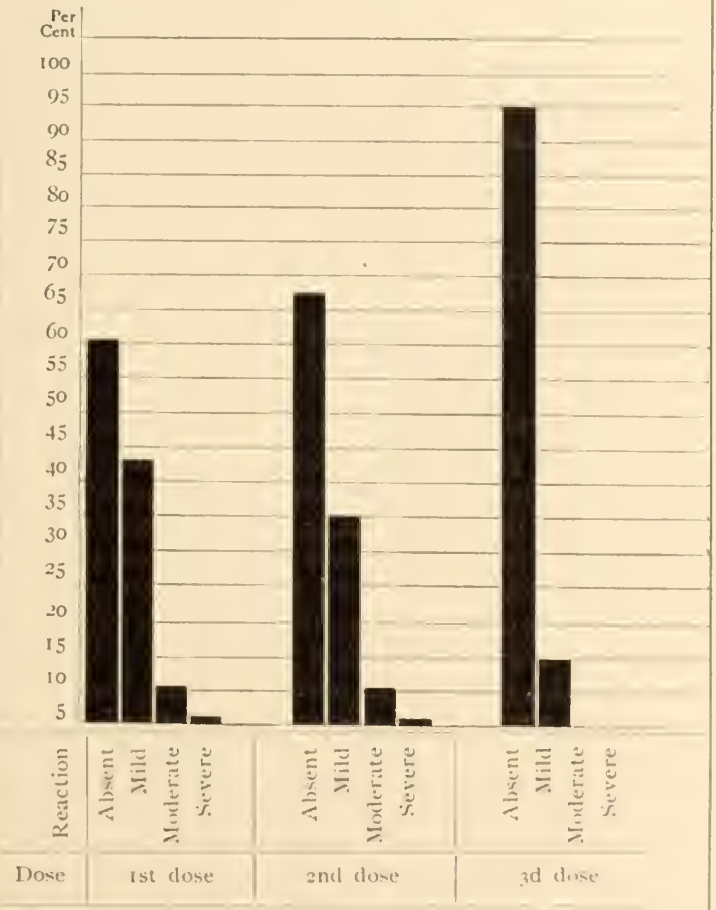
Case C—Reactions: severe, absent, absent. Patient has never had typhoid, was in good physical condition at time of inoculation, and does not recall any circumstances, which may have tended to produce the severe reaction, except that he was slightly exposed and probably got his feet damp.

Case D—Reactions: absent, severe, absent. Patient had a temperature of 103 degrees on the following day with severe prostration; confined to bed for three days; weakness for a week thereafter; local redness disappeared after first 30 hours. Patient had a severe case of typhoid fever in 1892, but was in good physical condition at time of inoculation, and does not recall any circumstances which may have had a tendency to produce the severe reaction.

Examination of the table shows that, following the first dose, the reactions were either absent or mild in 93.5 per cent. of the cases; after the second dose, in 92.8 per cent.; and after the third dose, in 100 per cent., there being no moderate or severe reactions recorded. Although covering only a comparatively small number of cases, these results are closely similar to those cited by Major Russell in his report of inoculations in the Army, during 1910.

Reports regarding seven of the patients stated in addition that they had had typhoid fever at some previous time. The date of infection and the reaction following inoculation with antityphoid vaccine in each of these cases are given in the following table:

DATE OF PREVIOUS ATTACK OF TYPHOID	REACTION FOLLOWING INOCULATION, 1912
1890	Mild, severe, absent.
1892	Absent, severe, absent.
1892	Absent, mild, absent.
1899	Absent, absent, absent.
1900	Mild, mild, absent.
1905	Absent, absent, absent.
1906	Mild, mild, absent.



Per cent distribution of reactions following inoculation with anti-typhoid vaccine.

An interesting side-light on the work of inoculation of the field force of the Reclamation Service is shown by a recent epidemic of typhoid at Malta, Montana. Practically all of the cases developed in a hotel, where the water for domestic purposes was furnished from a shallow well. Among the persons taking their meals at the hotel, were four employees of the Reclamation Service. Prior to the outbreak of the epidemic two of these employees had been inoculated with antityphoid vaccine; one of the men had had a previous attack of typhoid and was not inoculated, while the fourth declined to take the treatment, and shortly afterwards contracted a severe case of the disease. While not conclusive of course, it was, nevertheless, a striking object lesson of the prophylactic value of inoculation. Incidentally it may be stated that the inoculation of employees of the Reclamation Service at this place has excited the interest of the townspeople to such an extent that preparations are being made to secure a supply of vaccine for the inoculation of those outside the Service, who may care to take the treatment.

CASES TREATED WITH SODIUM CACODYLATE

By F. R. Harrison, M.D.
East Liverpool, Ohio

In presenting the history of a few cases treated with sodium cacodylate, it is not my purpose to undertake to establish the true relations between certain eczematous conditions and syphilis, nor will I undertake at this time to theorize on the specific action of sodium cacodylate in these conditions. I only wish to present you with the picture of certain conditions with the results of treatment as I have observed them. The objective or empirical method of gaining knowledge is one that characterizes modern science, the key note of which was struck by John Hunter in his advice to Jenner, when the latter was beginning to ponder on the subject of vaccination—"Don't think —investigate."

Rational methods in medicine are scientific in essence, and the disquieting influence of rigorous criteria can only be appeased after thorough and scientific diagnosis and treatments have been established. However important the scientific phases of medicine may appear, the definite results obtained by the administration of a certain chemical agent in certain conditions should receive more than passing notice.

A few case reports of this character are as a few grains of sand that go to make up the mighty beach. They are merely offered as a comparison to the observations made by others who have chanced to administer sodium cacodylate in similar conditions, as it is only by such comparison that we are able to establish a basis for rational treatment, thereby laying the foundation for the scientific questions which are to be answered from sources other than clinical observation.

Case No. 1—M. W. Case, one year standing. Diagnosis: Syphilis. Was under my care for some time, receiving as a treatment protoiodide of mercury, saturated solution of potassium iodide in conjunction with ordinary tonic treatments. This case presented a primary infection, the only evidence of lues being an occasional sore throat and a persistent breaking out of dry patches on the scrotum, which resisted all local treatments. After this condition had continued for quite a time the patient was given muscular injections of mercury bichloride (Dr. M. Zambeletti, Milan, Italy) without results. Sodium cacodylate (P. D. & Co.) was then injected every third day, and to my surprise, and to the great relief of the patient, all symptoms were cleared up in one week. Patient has received nine injections to date.

Case No. 2—Mrs. Wm. W. Diagnosis: Syphilis of twenty months' standing. Received the ordinary general syphilitic treatment, with no evidence of a recurrence of the disease until she became pregnant and miscarried at eight months, the child showing all evidences of syphilitic infection, as macerated skin, etc. The placenta was full of nodules, with traces of apoplexy, due to hemorrhage of the blood vessels of the lumen, as usually noted in such cases. The patient did not receive syphilitic treatment for certain marital reasons until she again became pregnant, when at the end of the fourth month she began to show ulcerated condition of the larynx and fauces with several ulcerative skin spots as symptoms of the beginning of the tertiary stage. Three weeks ago she was placed on sodium cacodylate every third day and at the end of the third week all evidence of lues had disappeared.

Case No. 3—Mrs. O. P. Diagnosis: Syphilis of three months' standing. This case received no treatment except sodium cacodylate every third day, and has had all told 14 injections. All symptoms of a syphilitic condition had disappeared at the time of the twelfth injection.

Case No. 4—Mr. J. C. Occupation, electrician in coal mine. Diagnosis: Eczema, five years' duration. Presented a general eruption all over the body of a dry, scaly formation. This case failed to show any improvement from repeated efforts at treatment with constitutional and local remedies. Fifteen injections of sodium cacodylate were administered, followed by absolute relief from itching, the skin all over the body cleaned smooth, appetite improved, there was a gain in weight, the patient presenting a general good appearance.

Case No. 5—Diagnosis: Eczema, presenting a weeping, serous inflammation of the flexure surface of arms and legs. Has had recurrent attacks of this condition for about ten years, which failed to yield to the usual constitutional treatment. The patient was given eight injections of sodium cacodylate, with a complete relief of itching, patches clearing off, while the discharge of serum ceased, with gain in weight; apparently well.

Case No. 6—C. H. Diagnosis: Eczema, presenting large dry patches on the forehead, which has resisted all treatments for about fifteen years. Condition was practically constant during all this time. Following four injections of sodium cacodylate the scales fell off, leaving a soft reddish surface, relieved of burning and itching and in every way with a promise of complete recovery.

Following such striking results, it seems incumbent upon me to report the above cases. These patients are still under treatment and reported as feeling fine and gaining in weight. It is yet to be seen whether or not a complete cure has been established, and this will be observed only after the treatment has been discontinued for a sufficient length of time. It is hoped that other physicians using this preparation will report their findings in the treatment of the above conditions, also reporting, at subsequent dates, the condition which these patients presented after the treatment has been discontinued for a considerable length of time.

HEREDITY AND DEFECTIVE MENTALITIES.

Sir James Crichton-Browne, in his paper read before the Sanitary Inspectors' Association at Sheffield, quotes, from yet unpublished tables of Dr. Archibald Douglas, showing that heredity plays slight if any part in a great proportion of defective mentalities. Taking 2,339 cases recorded in the Royal Albert Asylum, Lancaster, definite hereditary taint was noted in 886; in 531 cases one parent was described as abnormal, imbecile, weak minded, epileptic, insane, defective or neurotic, and in 92 cases both parents were found abnormal. The defects of a large majority originated, seemingly, with themselves.

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EDITORIALS

THE SPECIALIST

The history of civilization is marked by the gradual crystallization of the indefinite in human relations into that which is more precise. First, various occupations become differentiated and then special departments within the professions. The process goes on indefinitely, as an art becomes more defined.

So at first the offices of physician, priest and lawyer were embodied in a single individual. After a long time, the physician, the priest and the judge have been separated. Many years ago, physicians were roughly divided into surgeons and those who did not do important surgical operations. Then there appeared the specialists, and later, all in the medical art followed conditions as they are at present.

Nevertheless, the matter of specialism is still quite undefined, and not yet are there definite criteria to decide what constitutes a legitimate specialty; nor are the customs governing specialists very well formulated.

A more careful survey of the field shows that things are not at all as they seem to the superficial observer. It will be found that sometimes the specialties most often spoken of really hardly exist, while some of the best defined specialties are hardly mentioned. So there are some points in specialism that are hard to determine, when information is sought.

For instance, there are certain minor conditions that a man may handle as a specialty, very much as a traveling salesman might carry a side line of some small thing that he sells, when he gets time, but which has nothing to do with his main work.

But the true specialist deserving recognition as such owes all his time and attention to the development of his particular field, and in justice to other physicians and to the improvement of his work should not accept general practice.

With the universal specialist we are all familiar—the man who is a specialist in the disease to which he is called. This does not need discussion.

To take a concrete example of a difficulty that commonly happens and to suggest a solution: Suppose a stranger in a great city decides that he wishes the services of a specialist—a man who can place at the disposal of his patient the special skill acquired by having devoted all his time and attention to the condition under consideration. The seeker for special advice calls the hotel porter and says that he wishes the name and address of a specialist. Within a short time, the hotel physician presents himself and declares that he has given special attention to the condition in question. If he is rejected (supposing the condition to be a matter of disease of the heart), the young hotel physician next names his professor of practice in his medical college—a good man for counsel, no doubt, but not qualified as a specialist by the consecutive pursuit of a special department of medicine.

But how is the stranger in the great city to find the specialist? The matter is simpler than it seems. The universal specialist only knows what his specialty is when he knows the nature of the case. Let the stranger say to the hotel physician, "I want a list of several specialists." Then let the stranger take down his room telephone and call up the offices of the men named in order, and ask the simple question, "What is Dr. X.'s specialty?" Provided the physician has not been informed as to the nature of the case to which he is liable to be called, he will be unable to qualify except in his true specialty.

The number of specialists in medicine is bound to increase in the future as it has in the past, and with the development of each new specialty the same objections will be raised by the profession, who should see that no one qualifies as a specialist without deserving it. There will be no lack of criticism. It will be freely offered on all sides, and the man who establishes a new specialty deserves all the rewards he may get. The real specialist, in the long run, will be distinguished from the others, and will be accepted and valued by the general practitioner for the help that he can give him and his patients. His most active opponents and those who will oppose the idea of a new specialty are the universal specialists who are seeking the advantages of the specialist without being willing to pay the price in foregoing the emoluments of general practice.

The telephone test suggested above is a cheap, quick and efficient method of identifying the real specialist.

HIGHLY INJURIOUS ADVICE TO THE PUBLIC BY PHYSICIANS

In one of our influential city newspapers of recent date, we find an article written by an M.D.—whose name, however, does not appear in the latest medical directory, which is misleading in that statements are made and conclusions drawn calculated to not only disturb the members of the medical profession, but raise false hopes in the minds of the layman. For instance, the operation of trephining "one little chap with a penchant for burning houses and barns, 'is given,' and the boy's pyromania was completely eradicated." Following this it is stated that: "Unfortunately, these operations, like certain others, guaranteed to prevent hereditary criminals and degenerates from being born, are rarely performed, owing to the prejudice of an unsufficiently enlightened public." (sic.)

Cretinism is referred to as caused by a congenital lack of the thyroid, and the remedy given, thyroid extract. A case is cited of a former mayor of a city who went wrong after the removal of his thyroid; he became a thief and a liar with a terrible temper, even brutal, but six months' treatment with the thyroid from the sheep turned this man into a good citizen and presumably a good husband.

Indican is described as a "poison generated by putrefactive decomposition in the intestines" and is said to be "a poison almost as deadly as curari." Unfortunately in this instance a remedy is not given for the treatment of suspected or demonstrated indican.

We fail to see just where all of this information will benefit the layman, and the article is written for the layman, published in a popular lay magazine or newspaper. "As regards the cranial operation for hereditary or inherited criminality, there is no trustworthy evidence to show that changes in moral character, independent of mental deterioration, result from pressure on the brain. Sensational announcements of improvement in such cases after surgical intervention, like those that were formally made after various surgical procedures in epilepsy, need to be controlled by the subsequent history of the case. Immediate improvement in such cases is usually mental rather than physical, and successes reported before many years have tested their permanence are liable to produce false impressions."

Another useless and injurious reference to treatment recently appeared in one of our prominent city daily papers, "A New Remedy for a Cold," the writer of which signs himself an M.D. The remedy is hexamethylenamine, manufactured the author states from coal tar (?), but this statement is immediately followed with another, "that the chemical is a condensation product from formaldehyde and ammonia. It has been recently discovered that when taken internally in sufficient doses, it is excreted by the bronchial pulmonary and nasal tissues and has a local antiseptic effect on these tissues as well as a *constitutional effect on the blood.*" The exact dose is not given, but the information is vouchsafed that: "this chemical, when taken several times a day with a large glass of water, stops the irritating discharge from the eyes and nose and favorably affects the general *malaise* of patients suffering from infection of this sort."

Now can a physician imagine a patient suffering with "cold" dosing himself with hexamethylenamine. Is it not known to every well informed medical man that in susceptible persons this product —by whatever trade name it may be purchased—may cause gastric and renal irritation, with hematuria, hemoglobinuria and albuminuria, also diarrhea, abdominal pain, a rash, headache, tinnitus aurium and strangury? And yet an M.D. will advocate its use by the public for the prevalent "colds." Should not the profession frown on this gratuitous and highly injurious advice to the public? And should not a metropolitan newspaper safeguard the public by submitting such articles to the censorship of a well informed physician before publishing?

ANOTHER ASPECT OF EUGENICS

There are many obstacles to be met and overcome before we can safely separate the fit from the unfit, and who is to sit in judgment? We know that there are strongly marked characteristics in man, those which are not plainly apparent, as well as others which show for good or bad. The independence of unit characters, says Walter in his work on Genetics, demonstrates that "no person is wholly good or wholly bad." Who will be responsible for the examiner? It will not do to accept man at his own estimate of worth. The list of weakling babies who were apparently physically unfit upon first judgment, but who afterwards became powerful factors in the world's progress, who bulk large in history, is a notable one, including Calvin, Newton, Heine, Voltaire, Herbert Spenser, Darwin, and Robert Louis Stevenson. The long list of illegitimates whom on general principles some of our moralists would perhaps have condemned as undesirables, show a remarkable number of makers of history and rulers of men.

A most notable example of a bad heredity was that of Jonathan Edwards, whose grandmother was Elizabeth Tuttle, a woman of great beauty, of tall and commanding, as well as striking appearance, of strong will, extreme vigor and mental grasp akin to rapacity, but with an extraordinary deficiency in moral sense. She was divorced from her husband, the grandfather of Jonathan Edwards, on the ground of adultery and other immoralities. The evil trait was in the blood, for one of her sisters murdered her own son, and a brother murdered his own sister. That Jonathan Edwards owed his remarkable qualities largely to his grandmother rather than to his grandfather is shown by the fact that Richard Edwards, the grandfather, married a second wife after his divorce and had five sons and one daughter, but none of their numerous progeny rose above mediocrity, and their descendants gained no abiding reputation. Would it not have been a great eugenic mistake to have deprived the world of Elizabeth Tuttle's germplasm, although it would have been easy enough to have found judges to condemn her.

Desirability and undesirability, must always be regarded as relative terms more or less indefinable. In attempting-to define them, it makes, therefore, a great difference whether the interested party holds to a puritan or a cavalier standard.

One needs only to recall the days of the Inquisition in Spain, the massacre of the Hugenots in France, or the burning of witches in Salem, to realize what fearful blunders human judgment is capable of. It is not likely that man will ever apply to man an equally deplorable eugenic inquisition.

A BILL TO REGULATE THE PRACTICE OF NURSING

One of the most important pieces of medical legislation now under consideration in the New York Legislature is the bill introduced by Senator Seeley to regulate the practice of nursing and to ensure that no unqualified nurses masquerade as fully trained graduate nurses. Under existing conditions it is quite common to find registries sending out socalled "trained nurses" whose sole preparation has been a brief course in a correspondence school supplemented by a certain amount of practical work under the supervision (sic) of a practicing physician living in the district where the student resides. This would be laughable were it not so serious a matter, for into the hands of such "trained" individuals may be placed the care of a desperate case of typhoid fever, or pneumonia. The State owes it to its physicians as well as to the general public to safeguard them against the practice of incompetent nurses, and the bill under consideration aims to accomplish this purpose. When a family now engages a "trained nurse" they have certain definite and well-known qualifications in mind, and the State should guarantee that these qualifications are possessed by every nurse advertising herself as a "trained nurse" or "graduate nurse." The proposed bill makes mandatory the licensing of trained nurses, as the permissive registration act passed some years ago has failed of its purpose. It will work no hardship on women now in the field, as a waiver clause provides for them during the next three years. We are in hearty accord with the purpose of the bill and trust that it may be adopted.

THE FEEBLE MINDED

Quoting Director Bleecker Van Wagenen of the Vineland School for the Feeble Minded as estimating 2 per cent. of the population to be "of mentally defective strain." Mr. Robert W. Hebbard, Secretary of the New York State Board of Charities, says the 200,000 whose minds are affected in this State are ill cared for. The census of the custodial asylums reveals 4,208 inmates, slightly exceeding their proper capacity.

THE DANGER IN USING FINGER BOWLS IN RESTAURANTS

The Buffalo Health Department has taken steps to rid the city of brass finger bowls. A recent investigation showed that such bowls were in use in over half of the restaurants and in some of the hotels. Health Commissioner Fronczack said that the brass bowls were insanitary and spread disease, because it was difficult to cleanse them thoroughly. The Health Commissioner did not object to the use of glass bowls if the waiter rinsed the bowl in boiling water after it had been used. The Health Department is to make war against all restaurants and hotels where sanitary laws are not observed.

PREMATURE ARTERIAL SENILITY

In the discussion of a paper on Premature Arterial Senility, By W. Blair Stewart, read at the 146th Annual Meeting Med. Society of New Jersey, Dr. Louis F. Bishop, New York said: I must say that I think that Dr. Stewart has given a most satisfactory outline of the best accepted views on the subject. There is only one point worth mentioning by me, and that is that we should make a distinction between atheroma and arteriosclerosis. The former is the senile hardening of the arteries, which is almost physiological. It has nothing to do with arteriosclerosis, except that occasionally in atheroma leads to accidental breaking through of an atheromatous patch and cerebral involvement. Arteriosclerosis is a compensatory process, beginning with a compensatory thickening of the coat of the artery, to keep up the blood pressure. Then the artery hardens, and we get arteriosclerosis. Neurasthenia is often an early stage in the arteriosclerosis, showing autointoxication, which leads to kidney change and we have the whole picture of the disease. Dr. Stewart's conclusions are most sound and satisfactory, and are the views that ought to be accepted.

DR. ROBINSON HONORED.

A banquet was tendered to Dr. William J. Robinson on March 7th at the Hotel St. Denis. Over two hundred physicians, editors, writers and prominent citizens were present and letters and telegrams were read from physicians and editors in many other cities. Dr. A. Jacobi, President of the American Medical Association, acted as Toastmaster and gave high praise to the guest.

Toasting "Dr. Robinson the Citizen," Hon. George McAneny, President of the Borough of Manhattan, said: "A man who plays the part of Dr. Robinson is not merely a citizen, but a good citizen. He has dealt with those things which before long will be matters of discussion in many and many a place."

Other toasts were by Dr. James P. Warbasse, who spoke of the guest of the evening as "The Iconoclast," clearing Medical Journalism of former abuses; Dr. H. Edwin Lewis, who gave some interesting reminiscences; and Mr. James F. Morton, Jr., who praised his work in the field of sex education and characterized his campaign against prudery. Mrs. Anita C. Block, woman's page editor of the *New York Call,* toasted him as "The Champion of Womanhood," and other toasts dwelling on the qualities of Dr. Robinson as physician, social reformer and friend were given by Dr. A. L. Goldwater, Mr. Edwin C. Walker, Mr. A. Bancroft Firmin, Mr. Gregory Weinstein, Mr. O. S. Wadleigh, and Mr. Edward L. Bernays.

Dr. Robinson, in his response, described the problems besetting the path of a radical medical editor, and expressed his gratification at the fact that among those present were representatives of so many divergent views and occupations.

DIGEST OF CURRENT MEDICAL LITERATURE

Gonorrheal Ophthalmia Treated With Gonococcus Vaccines.—Mittendorf in the *Medical Record,* March 8, 1913, reports the use of gonococcus vaccines in gonorrheal ophthalmia in a series of nine cases. The cases so treated showed very marked results and the clinical history of the cases is given. In all there was a very rapid termination of the swelling of the lids and a decided lessening of the discharge, while in only one case were the bacteria found after the second week. Usually he felt after the first couple of days that all danger to the eyes was passed and that in a week or ten days the patient was as good as cured.

In analyzing the nine cases detailed, the use of the vaccine seems to be warranted in this disease, as the reduction of the swelling of the lids is prompt while the deeper tissues of the cornea and conjunctiva are apparently quite protected effectively against an invasion of the gonococci, as shown in the cases where there were abrasions of the cornea.

This appears to be a useful adjunct treatment, especially in those cases treated outside of hospitals where proper nursing is not in evidence—small places in the country. The vaccines used were stock vaccines from three different laboratories purchased in the open market. Fifty million gonococci was an initial dose, one hundred million as subsequent doses did not affect even small babies in any untoward manner locally or systemically, and double this dose was used and well borne in adults. The use of the gonococcus phylacogen, was attended by a more rapid effect, but the chill and rise of temperature reaction make its use outside of a hospital, or when no trained attendance is at hand, alarming to the lay mind, although expected by the physician. These cases reported were treated alongside of others in the ward in which the old methods alone were used and many of the latter ran a course of six to eight weeks, during which the swelling and discharge persisted for a long time, with the attendant worry as to the danger of complications of the cornea and loss of the eye.

In not one case treated was the result at all unsatisfactory while the almost immediate reduction of the inflammation was most gratifying.

The treatment should be supplemented by measures of local cleanliness and antisepsis.

Induced Pneumothorax in the Treatment of Pulmonary Disease.—In a thesis on the above subject in the *Johns Hopkins Hospital Bulletin*, February, 1913, by Louis Hamman, M.D., he sums up in the following conclusions:

Induced pneumothorax is a harmless procedure and the operation, carefully performed, without danger. In 3 out of 20 cases it was impossible to produce any pulmonary collapse owing to general pleural adhesions. Of 16 cases in which pneumothorax was successfully produced, in but 7 was the pneumothorax complete. Of 9 cases with induced pneumothorax existing for four months or longer, 4 have developed pleurisy with effusion. The pneumothorax has in most instances an immediate and striking influence upon the cough and expectoration. Tubercle bacilli may disappear from the sputum. Constitutional symptoms abate more slowly. In most instances there is at first a loss in weight followed by a gradual rise. The total collapse of one lung causes surprisingly little inconvenience. Usually there is but slight dyspnea on exertion. Many patients with an induced pneumothorax assist actively in the work about the sanatorium. The procedure is of great value in the treatment of pulmonary hemorrhage. While induced pneumothorax will never become a routine method for the treatment of pulmonary tuberculosis, still in selected cases it offers a prospect of temporary and permanent relief, when the usual methods of treatment have been unsuccessfully tried. Quiescent lesions in one lung with acute recrudescence in the other are the most favorable for the treatment. Its use need by no means be limited to strictly unilateral lesions, but when there is advanced disease of both lungs little benefit can be expected. It would seem advisable not to withhold the treatment until the patient is hopelessly advanced, but to apply it judiciously to suitable moderately advanced patients in whom the disease tends to progress in spite of appropriate treatment.

Contradictory Findings in the Wassermann Test.—Wolbarst in the *New York Medical Journal*, February 22, 1913, sums up his conclusions as follows: The Wassermann reaction is dependent for its results on the skill and knowledge of the serologist.

The results of the test depend in great measure on the absolutely perfect standardization of the reagents used; these are subject to variations in the hands of different serologists.

As a result of these differences, diversity in the findings are not infrequent, and insufficient attention has hitherto been given to this particular feature of the reaction.

It is a gross error to accept the findings of one serologist as conclusive, particularly if his result is positive and the diagnosis dependent on his report; his work should be checked up by one or more equally competent workers. If two or more competent serologists report on a given serum, the majority opinion may be accepted as fairly conclusive; frequent reexaminations are always of advantage to the patient.

Of thirty seven cases thus studied for discrepancies, agreement of findings took place in twenty six cases (seventy per cent.); absolute contradiction of findings took place in five cases (fourteen per cent.); slight disagreements took place in six cases (sixteen per cent.).

All mention of results of the Wasserman test, in the literature or elsewhere should be accompanied by the name of the serologist who made the test, in order that the measure of accuracy and skill employed may be estimated.

The serologist should be selected with the same care and caution as is exercised in the selection of a consultant or expert in any other branch of medical science.

Thyroid Treatment of Epilepsy.—Galma, *Revue de Médecine*, January, 1913, discusses the relationship existing between disturbances of the thyroid and parathyroid secretions and certain cases of epilepsy. The results obtained with thyroid treatment and the pathological changes in the thyroid not infrequently discovered tend to justify the separation from the idiopathic cases of the disease a group which may be designated as thyroid epilepsy. In two of his cases in which the bromides had proved useless, the administration of the thyroidine brought about cessation of the seizures, an improved general condition, and an awakening of the mental and moral faculties, previously considered obtunded. He considers thyroid treatment indicated, first of all, in epileptics with goiter or myxedemia, although even in these it will not always prove effective when abnormal thyroid functioning is not the sole cause, but is combined with various forms of intoxication or with disturbances of other ductless glands. Thyroid preparations should also be given in cases presenting merely some of the minor signs of hypothyroidism, such as edema, tendency to obstruction of the nasal passages, periods of aphonia, loss of lateral portions of the eyebrows, baldness, disturbances of temperature conditions or of the digestive functions, headache, somnolence, etc. When thyroid preparations do good, the bromides should be omitted, as they frequently produce toxic phenomena and mental disorder in these patients. Infantile convulsions in those with suspected myxedema or abnormal thyroid functioning may also derive benefit from thyroid.

Vomiting due to Puerperal Retroversion of the Uterus.—Sperling, *Zentralblatt für Gynakologie,* January 11, 1913, reports the case of a woman twenty three years of age, who began to vomit severely at the end of the third month of pregnancy. This increased until about the fifth month, when spontaneous abortion occurred. The patient then recovered without complications, the vomiting decreasing, but not ceasing completely. Three or four months after the miscarriage the vomiting increased suddenly and became uncontrollable. Examination showed hyperinvolution and retroversion of the uterus. The organ was curetted, but no fetal tissue found. After the operation the vomiting ceased. Sperling concludes that this case indicates that the vomiting of pregnancy is not a manifestation of maternal intoxication by fetal material and that here it was more probably due to involvement of the sympathetic plexus setting up reflex disturbances.

In the same journal under date of January 18, 1913, Max Stalz in a thesis on Hyperemesis Gravidarum, states his conviction that the condition may be due largely to the irritation of the nervous system. He reports two cases in which vomiting was eventually controlled by the continued administration of opium, enemas being used to keep the bowels open. In neither case did it become necessary to produce abortion, although such an outcome was feared.

Treatment of Chronic Ulcers of the Leg.—In the local treatment of chronic ulcers of the leg, Adams, *International Journal of Surgery,* February, 1913, states that, for the reduction of the inflammation and the relief of pain, moist dressings are the most effective form of dressing. For cleansing and sterilization, a one half to two per cent. creolin or lysol emulsion is very useful for especially those dirty ulcers from which a profuse foul discharge escapes. A one per cent. solution of formalin is of great value for smaller ulcers, particularly those due to tuberculous disease. The removal of sloughs may be hastened by cauterization with nitrate of silver and the application of iodoform or napthalin powder. Certain ferments, such as brewer's yeast, papoid, caroid or protonuclein may help to clean. Stimulation and granulation may be accomplished by applications of powders, solutions, ointments and grafts. Of powders, boric acid, dermatol, calomel, aristol, orthoform, idoform, bismuth subnitrate or subgallate, zinc oxide, alum, etc. Solutions, nitrate of silver, zinc or copper sulphate, potassium permanganate, ichthyol, formalin, balsam of Peru, etc. Of ointments, zinc oxide, boric acid, mercury, salicylic acid, and scarlet red.

Chemistry of the New Materia Medica.—Hille, *Medical Record,* February 8, 1913, claims that inorganic matter and organic material are essentially the same, but that they differ in form and structure. The inorganic world is crystalline, the organic colloidal; the inorganic is coarse in particle and slow in vibratory activity, the organic fine in particle and rapid in vibratory activity. Mineral bodies, in organic form, are an essential constituent of food and of the animal organism, and are vitally important in the prophylaxis and cure of disease. On the other hand, crystalline or inorganic minerals are not suitable for food or remedies for the animal organism, and will be eventually eliminated from the materia medica to be replaced by vitochemical, or true organic minerals. The smaller the particle of a colloidal mineral and the higher their rate of vibration, the easier it is assimilated and the better adapted as a remedy. Many of the so-called organic salts are not such in the true sense because all or part of the compound is still crystalline, not colloidal. The new chemistry not only makes clear the difference between inorganic and organic, but also shows nature's evolutionary principles.

Herpes Zoster Following Delivery.—Hans Kunz in the *Zentralblatt für Gynakologie,* January 25, 1913, reports a case of extensive herpes pectoralis in an eighteen year old girl, four days after delivery. On the third day following its appearance there was a chill with a rise in temperature. That herpes appears after the use of various drugs and in the course of certain infections is well known. In the case reported, uterine contractions had been stimulated by the use of pituitary extract.

THERAPEUTIC PROGRESS

Human Carriers of the Infection of Epidemic Poliomyelitis.—S. Flexner and P. F. Clark, *J. A. M. A.,* January 18, 1913, found by injecting a monkey with the filtrate of a saline solution which had been used for nasopharyngeal irrigations of the father and mother of a child suffering from epidemic poliomyelitis, succeeded in producing the diseases in the animal. This result brings convincing evidence of the occurrence of the virus of the disease in the nasopharynx of healthy persons who have been in close contact with a case of acute poliomyelitis, and affords an experimental basis for the belief, based on clinical observation, of the occurrence of passive human carriers of the infection.

Boiled and Raw Milk.—Brenneman, *J. A. M. A.,* February 22, 1913, states that raw and boiled milk are clinically very different foods; that the most striking difference between them, as shown by experiments, is in their reaction to rennin; that the casein of raw milk, unless modified so that it will not form hard and large coagula, offers serious difficulties in digestion that are not present in boiled milk; and that these differences between raw and boiled milk should be borne in mind in comparing clinical, therapeutic and experimental results in infant feeding.

Chemotherapy in Infectious Diseases.—Gutman, *Roussky Vratch,* December 22, 1912, *N. Y. Med. Jour.,* March 1, 1913, reports determining experimentally that ethylhydrocuprein, a derivation of quinine, is antagonistic to pneumococci, whether present in the lungs or in the blood. The objection to its use is that it may cause amblyopia even in small doses. The induced amblyopia, however, is temporary, disappearing upon the withdrawal of the remedy. The effect upon bacteremia in man has not been determined, but results obtained on animals are very promising.

Liquid Paraffin (Vaseline) in the Treatment of Wounds.—Auerbach, in the *Medizinische Klinic,* December 1, 1912, reports the use of liquid paraffin (vaseline) on the skin surrounding wounds to protect it from eczema. It is sufficient to thoroughly paint the circumference of the wound over a wide area. This method also prevents the bandages from sticking to the wound, and even though they may be soaked with blood, they almost fall off of themselves.

Pituiglandol in Eclampsia.—Krakauer, *Berliner Klinische Wochenschrift,* December 2, 1912, reports a case of a primipara twenty years of age, in whom eclampsia developed in the seventh month of pregnancy. Labor was induced, but as no pains followed in twelve hours, one c.c. of pituiglandol was injected. Two hours later spontaneous birth took place. The patient was at the time unconscious and profoundly under the influence of chloroform: Recovery ensued.

Chemotherapy of Bacterial Infection.—Levy's experiments (*Berliner Klinische Wochenschrift*, December 30, 1912) on animals have shown that a fully developed infection with the streptococcus mucosus can be checked by ethylhydrocuprein and the animals permanently cured, while untreated control animals died without exception in the manner typical of bacteriemia. These results can be attained even though there be decided bacteriemia present previous to treatment.

A New Treatment for Pneumonia.—Aquinio, *Semana Médica*, December 26, 1912, reports the successful treatment of grippe, above all when complicated with pneumonia, with the salicylic preparations. The treatment consists in a local application upon the affected parts of a solution composed of ten grams of salicylic acid in ninety per cent. alcohol and ten grams of castor oil. These applications should be made three or four times in twenty-four hours, and cause only a slight erythema, which the patient bears well.

Codeonal.—Oy, *Medizinische Klinik*, December 8, 1912, says that codeonal is a pleasant and harmless hypnotic which is especially recommended for the old and decrepit with a mild degree of restlessness or a slight cough. Its sedative action is insufficient in cases of marked restlessness, delirium and excited states. Habit formation from prolonged administration was not noticed.

Treatment of Syphilis with Salvarsan.—Lancelot Kilroy, *London Lancet*, February 1, 1913, reports giving 2,147 injections to 1,000 patients and observing invaliding in only thirteen; no deaths, and only twenty-four relapses. The relapses were chiefly among those who had received not more than two injections, while of sixty-eight cases in which three injections were administered, there was a relapse in but one.

Pellidol.—Chemically a diacetyl derivative of amido-azotoluol, having an advantage over ordinary scarlet red in that it possesses no coloring properties. It is used, like scarlet red, for the treatment of ulcerations, and is said to act extremely well. Is used as a 2 per cent. ointment for ulcers and as an epithelial regenerator; soluble in alcohol, ether and vaseline.

Novaspirin in Influenza.—Schoenheim, *Wiener Med. Press*, reports prompt results from novaspirin in almost all cases of influenza, especially in the catarrhal forms, in which the fever, rhinitis and chronic bronchitis subsided within a short time. Even in the gastrointestinal form of influenza novaspirin proved useful.

Dress and Malignant Disease.—Using the Los Angeles fashion show for his text, Dr. Alfred Jones, a distinguished nerve specialist of London, made the assertion that "dress is causing the ruination of more lives of women in America than malignant disease."

MISCELLANY

HEREDITY

The burden of heredity lies upon us, and we are groping along unknown paths in our efforts to see light and to find a torch to shine triumphantly for the good of all mankind. Our ablest minds are tackling the problem given us by Mendel and are finding their way clearer at every step. In America men are tracing the descendants of various types, and it is remarkable how a dominant characteristic is maintained against all the laws of chance. Enough examples says *The Medical Press and Circular,* January 29, 1913, have been studied to justify certain rules of expectancy. Both parents being neuropathic, all children will be neuropathic. One parent being normal, but with neuropathic taint from one parent, and the other parent neuropathic, half the children will be neuropathic, and the other half normal, but capable of transmitting the neuropathic taint to their progeny. Both parents being normal, but each with neuropathic taint from one parent, one fourth of the children will be normal, and their descendants will be normal, one half will be normal, but capable of transmitting the neuropathic taint, and one fourth will be neuropathic. Both parents being normal, one of pure normal ancestry and the other with neuropathic taint from one parent, all the children will be normal, half capable and half incapable of transmitting the taint to their progeny. Both parents being normal and of pure normal stock, all children will be normal and not capable of transmitting the neuropathic taint. When we take these rules and realize that they are almost proven, and that they are capable of being put into practice here and now we can see that something may be done to mould the race as our surgeons cut disease from the individual. Environment and education are as manure to the plant—they better the individual, but as far as improving the stock is concerned, they are useless. We must put our trust in gametes, not in gymnasia.

SUFFRAGETTE LUNACY

The late developments of the form of hysteria, known as the militant Suffragette movement, says *The Medical Press and Circular,* February 12, 1913, should be of interest to the student of psychology. It is only a few short years ago that the cloud no larger than a man's hand appeared in the social sky, a portent of the violence that was thenceforth to mark the campaign of a certain section of unenfranchised woman. Their latest escapades have been calculated to alienate any shred of sympathy with their cause that might linger in the breast of the average law abiding citizen. As readers know, when the Franchise and Parliamentary Election Bill was laid before the House of Commons a few days since, the Speaker ruled that certain amendments would stop the further progress of the Bill. The Government, recognizing the inevitable, bowed to the ruling, and abandoned the proposed measure, which included a proposal by private members to extend the Parliamentary franchise to women. Incensed with this delay, the militants at once proceeded to pour the vials of their wrath, not upon the Speaker, but upon the Government and society generally. They fired the pillar boxes, they broke windows (including those of Prince Christian), they cut telegraph wires, and blew up fuse boxes. Their crowning exploit has been to destroy from one to three thousand orchids at Kew. The last outrage falls on the nation, to whom the botanical treasure houses of Kew belong. It seems difficult to avoid the conclusion that women who commit such senseless felonies require skilled mental treatment in lunatic asylums.

WHITEWASH

Now that we are beginning to think about the spring cleanup, a suggestion for a good cleansing and disinfecting wash for courts, area walls, stables, etc., is in order. For ordinary purposes the well-known limewash will be found excellent. It is prepared from freshly slaked lime as follows:

Take 1 ounce of the lime to 5 gallons of boiling water, adding as you stir, one teaspoon (level full, not heaping) of table salt. This will make a wash of proved germicidal power, killing most germs, effectually sealing them in when used on dry surfaces.

The United States Government formula for a whitewash, where in addition to the cleansing effect durability is desired, is as follows:

Slake half a bushel of lime with boiling water; cover for an hour; strain through a fine sieve and stir in a peck of salt dissolved in enough warm water to do the work thoroughly; boil three pounds of rice to a thin porridge and stir in while hot. Soak half a pound of glue in cold water for an hour, then bring to boiling point by setting the vessel in a pot of boiling water over the fire; stir into the lime mixture together with half a pound of Spanish whiting. Now, pour into this 5 gallons of hot water; stir for three minutes from the bottom; cover to exclude dust and let it alone for two days. Apply hot when you are ready to use it. A pint of the mixture will cover a square yard of the surface.

This wash is used by the Government in and around Army posts and forts, and is very durable, being second only in this respect to paint.

BOOK REVIEWS

A NEW WORK IN THE HISTORY OF MEDICINE

W. B. Saunders Company, publishers, of Philadelphia and London, have in active preparation a work on the History of Medicine, by Dr. Fielding H. Garrison, Principal Assistant Librarian, Surgeon-General's office, and editor of the *Index Medicus*. Dr. Garrison's twenty years' experience in medical bibliography, and the unusual advantages derived from his close touch with the rich stores of the Surgeon-General's office, fit him most admirably for such a work as this.

His book will present the history of medicine from the earliest ancient and primitive times; on through Egyptian Medicine, Sumerian and Oriental Medicine, Greek Medicine, the Byzantine Period; the Mohammedan and Jewish Periods, the Medieval Period, the Period of the Renaissance, and Revival of Learning and the Reformation; the Seventeenth Century (the Age of Individual Scientific Endeavor), the Eighteenth Century (the Age of Theories and Systems), the Nineteenth Century (the beginning of Organized Advancement of Science), the Twentieth Century (the beginning of Organized Preventive Medicine). There will also be Appendices covering Medical Chronology, Histories of Important Diseases, Histories of Drugs and Therapeutic Procedures, Histories of Important Surgical Operations, and Bibliographic Notes for Collateral Reading.

Dr. Garrison's work will undoubtedly be a valuable book to every medical man. In this one volume he will get a complete history of medicine from its earliest times, presented in a concise form.

The illustrations are intended to stimulate the reader's interest in the picturesque aspects of medicine and in the personalities of its great leaders. The biographies will be confined to the most important facts and to interesting personal traits. The original bibliographic references to the important discoveries, operations and experiments will be given. Each period is to be followed by a brief survey of its social and cultural phases. Altogether it promises to be a most important addition to medical literature. We await its publication with much interest.

Food in Health and Disease. By NATHAN S. DAVIS, Jr., A.M., M.D., Professor of the Principles and Practice of Medicine in Northwestern University Medical School, Physician to St. Luke's Hospital, Mercy Hospital and Wesley Hospital, Chicago, etc. Second Edition. Philadelphia: P. Blakiston's Son & Co., 1912.

Originally the subject matter contained in this work was written for "A System of Physiologic Therapeutics," edited by Solomon Solis-Cohen, published in 1903. Constantly increasing knowledge of foods and diet as an adjuvant in the treatment of disease has necessitated an enlargement or bringing up to date Dr. Davis' original work, to which fact we are indebted for the volume here reviewed. The subject of food in health is discussed in two parts: General Principles of Diet and Diet in Health, and Diet in Disease. In Part I the author discusses foods in general; the elements of food, quantity and kinds of food needed in health; animal and vegetable foods; beverages; infant feeding; food as a cause of disease, and the uses of water. In Part II, the larger part of the work, we have Diet in Disease, large subjects to cover in a volume of 427 pages. And yet a careful reading reveals the fact that with a few omissions, well done. For instance, the importance of diet in psoriasis, so ably discussed by Bulkley, is not mentioned. In the chapters on infant feeding, milk dilution is not sufficiently dwelt upon. But these lapses do not detract from the value of the work.

It would be impossible in a review to discuss this work in detail or to more than mention some of the more outstanding chapters. In reading the chapters on the elements of food, we think the reader will receive much valuable information as well as from those on infant feeding; while the chapter on diet in diseases of the kidneys will be accepted as authoritative. There is a copious cross index, which will materially aid in references to the text. From the publisher's viewpoint, the work will prove a delight; paper, type, binding, etc., being all that could be desired. Finally, the book will doubtless prove an ever helpful text and reference to that troubesome question of what to feed in the various diseased conditions.

Men, Manners and Medicine. By "MEDICUS PEREGRINUS." Boston: W. M. Leonard, 1913.

What a delightful volume this one is; essays and sketches which originally appeared from time to time in the *Boston Medical and Surgical Journal.* They are random observations of a doctor, from his personal and professional point of view, on men and books and other phenomena, especially in relation to medicine. There can be no excuse for republishing them, much less for their writing, for surely the doctor enjoys and needs just such delightful excursions into literature; needs to see with other eyes than his own events of every day observation to him who can see. Unfortunately all of us cannot of ourselves see the most enjoyable events and things about us, and to those who cannot—well, let him buy a copy of this book and be glad that there is one who can take him along on his peregrinations, point out and laugh or become sobered at what he sees. More strength to our good "Medicus Peregrinus" and may we hear from again and soon. We would love to cite some of these helpful thoughts, but space will not permit.

Annual Report of the Surgeon-General of the Public Health Service of the United States for the Fiscal Year 1912. Washington: Government Printing Office, 1913.

In looking over the contents of this volume we gain some idea of the great value of the work being done by this branch of the service, and when we realize that every thesis is by an expert, and a personal study, we are forcibly reminded of how much the advance in medical and sanitary science is due to the painstaking study of these trained men. We have the latest and most authoritative studies of typhoid, measles, typhus, trachoma, pellagra, hookworm disease, poliomyelitis, cholera, leprosy, rabies, smallpox, yellow fever, bubonic plague; sanitation, quarantine and a veritable mine of information valuable to medical men, sanitarians, etc.

Genetics: An Introduction to the Study of Heredity. By HERBERT EUGENE WALTER, Asst. Professor of Biology, Brown University, with 72 figures and diagrams. New York: Macmillan Company, 1913. Price $1.60 net.

An attempt is here made to summarize for the intelligent but uninitiated reader some of the more recent phases of the questions of heredity which are at present agitating the biological world. The author very wisely writes in his preface that the subject of heredity concerns every one, but that many who wish to become better informed regarding it are either too busily engaged or lack opportunity to study the matter out for themselves. For such we know of no work better calculated than this to meet the demand, if they but make the effort.

It is refreshing to read a sane work written by a sane and scholarly individual, for much of the voluminous references to genetics of recent appearance is by amateurs, the pseudoscientist, or, as is often the case, by one with such vague, uncertain ideas or knowledge of the subject that it is harmful; not founded upon a scientific or intelligent study of available facts. An authoritative study, such as this work, will do much to properly enlighten the reader and through him the community.

It would obviously be impossible to here enter into an extended criticism of such a work as this. Suffice it, therefore, to say that the book under discussion will accomplish great good if generally and intelligently read. For the question of the betterment of the human race will lag if human knowledge is not in evidence. A proper understanding of the needs of the race must be seared into the intelligence of the common people, for only thus will it become an effective part of their very lives.

The Fitness of the Environment: An Inquiry into the Biological Significance of the Properties of Matter. By LAWRENCE J HENDERSON, Asst. Professor of Biological Chemistry in Harvard University. New York: The Macmillan Company, 1913. Price $1.60 net.

Fitness and environment in the light of present day or modern science play an all important part in the great scheme of order and teleology. Adaptation to environment as enunciated by Darwin made law a basis of purpose, whereby the fitness of organic beings for life won by an almost infinite series of evolutionary changes or adaptations to environment. Here we have the fitness from which all organic life must develop.

The unscientific reader will approach the study of the fitness of the environment with apprehension; indeed, the subject is one to perplex the mind of the thoughtful. To all such as seek enlightenment on the subject of fitness of the environment this work of barely three hundred pages will prove a revelation in that so much of science and philosophy could be condensed into so brief a space.

Not alone the average student of biological science, but especially the man of medicine will find here interest and profit. The chapters on water and carbonic acid will materially enlarge the scope of his point of view.

An Introduction to Chemical Analysis for Students of Medicine, Pharmacy and Dentistry. By ELBERT W. ROCKWOOD, M.D., Ph.D., Professor of Chemistry and Toxicology and Head of the Department of Chemistry in the University of Iowa, Author of a Laboratory Manual of Physiological Chemistry. Fourth Revised Edition with 20 illustrations. Philadelphia: P. Blakiston's Sons & Co., 1913.

This work will be found of value to the medical student as well as students in pharmacy and dentistry. It is of more than elementary character and is calculated to lay a sound foundation for the study of inorganic chemistry later or when the student goes deeper into this most fascinating and useful study.

Golden Rules of Gynecology. By GEORGE B. NORBERG, M.D., Professor of Diseases of Women and Clinical Gynecology, University Medical College, Kansas City, Mo., Gynecologist to Kansas City General Hospital, Fellow and Ex-President Kansas City Academy of Medicine. 250 pages. St. Louis: C. V. Mosby Co., 1913.

There is a need for just such a book as this one. It does not displace the textbook or the monograph on gynecology, but is rather a guide to what one should know and observe on this fascinating branch of medicine.

In 250 pages one finds the really "Golden Rules"—the observance and application of which will enable the practitioner of medicine to get results. Convenient in size and convincingly written, this volume can be perused over and over again with the feeling that each time it is read one becomes better able to cope with diseases of women.

Hygiene of the Nursery, Including the General Regimen and Feeding of Infants and Children; Massage, and the Domestic Management of the Ordinary Emergencies of Early Life. By LOUIS STARR, M.D., LL.D. Eighth Edition, with 26 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The fact that this book has reached its eighth edition is evidence that it fills a want, and this belief is accentuated in the reading of this the latest. There are chapters on the nursery, nursemaid, clothing, exercise and amusements, sleep, bathing, food, massage and emergencies, a wide range and yet treated with the knowledge of experience. We think that while all of the chapters enumerated will prove interesting and profitable reading, that that on food will be found especially so. We commend the work to all medical men.

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ORIGINAL ARTICLES

THE VALUE OF OBSERVATION AND EXPERIENCE IN CLINICAL MEDICINE*

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During the last thirty years physiological chemists and bacteriologists, as well as workers in the physiological and pharmacological laboratories, have done so much to advance our knowledge of disease and of the means by which we can arrive at a correct diagnosis and treatment that the student of to-day is necessarily taught a large amount of laboratory technique which was unknown to those who preceded him, and the conditions of the medical course, and of life after graduation, render it necessary that these facts should be thoroughly grasped during undergraduate days, since they cannot be well studied apart from well equipped laboratories and thoroughly grounded instructors.

On the other hand, it must not be forgotten by those who are about to engage in the practice of medicine that however important these laboratory methods of diagnosis may be, they are in reality of secondary importance in the vast majority of cases with which the physician comes in contact. Indeed, a provisional diagnosis, made by processes of physical examination or mental deduction, must be arrived at before the physician decides upon the line of laboratory investigation which is indicated. Furthermore, the practising physician soon learns that various circumstances conspire to prevent him from depending upon laboratory technique. In one case a diagnosis must be made and treatment instituted before sufficient time elapses to permit of laboratory investigation. In some cases, too, the patient is not willing to wait until laboratory investigation is carried out, or is unable, for good and excellent reasons, to submit to this delay. Again, the particular apparatus which may be required may not be at hand or may be out of order, or the reagents which are to be employed, if at hand, may have become stale and useless. Finally, there is a limited class of patients that expect a physician to arrive at a diagnosis without laboratory assistance, and think ill of him if he does not at least make the attempt, and it is only after he actually wins their confidence that he is able to persuade them that the time and trouble needed for a thorough investigation of the case by instruments of precision or by chemical tests is advantageous.

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*An address before the students of the Medical School, University of Pennsylvania, April 11, 1913.

A very sharp line of demarcation exists between methods of diagnosis which are followed in the laboratory and methods of diagnosis which are followed at the bedside, and not rarely an excess of laboratory training makes it difficult for the practitioner to develop the qualities of a bedside diagnostician which are so necessary for success. The student of to-day on graduation at one moment may feel elated that he knows so much more about certain technical details than his competitor who has been twenty or thirty years in the harness, but this feeling of elation will soon give way to a feeling of depression when he discovers that seemingly by instinct the older practitioner has made a correct diagnosis in a few minutes, whereas he has reached an only partly correct diagnosis after several hours of laboratory labor.

As long as the practice of medicine exists as a profession, the maxim that experience teaches will hold true, and experience in dealing with disease is not only regarded as a most valuable quantity by the laity but is also recognized as most valuable by members of the profession themselves. In other words, one of the advantages of the older physician over his younger brother is the ability which he has gained through long training to grasp the essential details of the case almost at his first glance at the patient. Much of this ability is unconsciously possessed because it is gained by a gradual process, yet it is none the less valuable, and its possession often impresses the patient with the insight which the physician has in his case. The value of this asset depends upon the power of observation, notation and deduction. In other words, diagnosis is a process of ratiocination, and observation depends in many instances upon the employment of all the nerves of special sense, of touch, hearing, sight, smell, but practically never, taste.

While the subjective symptoms are being described the physician must be more or less thoroughly studying objective symptoms, thinking of what he is told and of what he sees, feels, or hears, side by side, in parallel links, until a double chain is formed, which, coming together at one point, gives him the anchorage at which he can rest safely. After all these things have been depended upon and he has made a port where he will not be harassed by storm, he can make his provisional diagnosis absolutely certain by chemical or microscopic tests. In other words, the subject of my address to-night is to direct your attention to the need of increasing the acuity of your powers of observation, of training your tactile sense, the sharpness of your vision, the acuity of your hearing and the acuity of your olfactory apparatus when in the presence of a patient.

Many of you doubtless believe that when you practice the art of percussion you are to learn most from the sound which you elicit as the blow is struck, but every one who really practices this art knows full well that he who is skilful in it learns more from the sense of resistance which is offered to his fingers than he does from the sound, and can make as accurate a diagnosis by percussion in the machine shop full of steam hammers as he could in the quietest consulting room, and just in the same way as constant musical training improves the socalled ear of the musician, so does constant training in auscultation improve the ear of the physician. The untrained man with a hand on each side of the chest may be unable to detect any difference in vocal fremitus when disease is present on one side; whereas, the trained man at the first spoken word recognizes that fremitus has increased or diminished on one side as compared to the other.

An immense amount of information can be gained from the observation of the patient as a whole, the manner in which he walks into your presence, sits down in his chair, or rises from it; and his manner of speech will reveal perchance whether he is phlegmatic or nervous. The expression of his face may give you valuable information as to the character or stage of the disease; his build, his voice and his clothing all tell the trained physician innumerable facts which are most valuable to him in the line of investigation which he is about to carry out. The thin man with a peaked face, heavy coat and a muffler about his neck is probably a sufferer from some pulmonary or throat difficulty, while the heavily built, phlegmatic individual with a large head and well filled paunch is much more prone to be suffering from some cardiovascular or gastrointestinal difficulty; the latter may seem to be singularly careless as to whether his coat is open on the coldest day. Aged persons, or those prematurely senile, are often careless as to the buttoning of their clothes. A uriniferous odor may reveal a dribbling of urine, and a white spot or two on the trousers, to which flies seem to be unduly attracted in warm weather, may be the sign which will direct you to an investigation for sugar in the urine. The neurasthenic patient walks feebly, as if life were a burden as compared with the hardy man with good physique who strides along vigorously. There is little sense in asking the tall, thin, hollow chested person with a cough if he eats to excess, and there is still less sense in asking the average individual who is built like the driver of a beer wagon as to whether he has anorexia or whether he has lost much weight. So, too, it is obviously ridiculous to ask a woman of fifty five or sixty with an abdominal enlargement questions which indicate your suspicion that she may be pregnant; whereas it would be correspondingly absurd to suppose that in a young, married woman of twenty five this enlargement is due to a fibroid tumor.

Then again, by determining the mental and nervous characteristics of a case by means of these preliminary observations, valuable facts can be gained as to the course and questions which should follow. In one instance you find in a very few moments' conversation that the patient is one who is not only willing to tell you everything but willing and desirous that you should be equally frank, and is one who will not be unduly alarmed if you ask questions which to some people might indicate that you suspect the presence of grave disease, and so you will learn to fit your questions to the type of the individual. You obtain just as much information and you do not subject them to unnecessary shock and alarm. If you are interviewing a nervous mother about the illness of a child you do not ask her if it has ever had scarlet fever and frighten her at such a prospect, but you ask her whether it has ever been sick before, and if so, ask her to describe its illnesses; whereas, on the other hand, in many instances if the father is the only parent present, it is quite proper to ask him immediately whether the child had ever had scarlet fever, since the composition of the man's nervous system differs so from that of a woman that a question which is proper in one instance is improper in another.

When you begin to question patients, although they will often appear to be unduly loquacious, do not be impatient and interrupt; while all the symptoms they describe may be to your mind of little or no importance, in their loquacity they may let drop slightingly some fact which to your trained mind may be a valuable clue. Thus, a patient who comes to you suffering from shortness of breath and exertion may give you a very vivid description of his present difficulties and only incidentally mention the fact that twenty years before he had an attack of rheumatism. The shortness of breath which he describes is the main thing to him, but a shortness of breath is only a symptom and not a disease. You are interested in the discovery of the cause of the shortness of breath, and his old rheumatic history causes you to make a mental note that his dyspnea is probably cardiac in origin, and therefore when you begin to examine him, his heart is the first organ which deserves your attention. Furthermore, even if the patient is so ignorant or careless as to be unable to give you an intelligent account of himself, the manner in which his history is told, the character of his speech or the expression of his face while speaking may give you valuable points in diagnosis.

When you visit a patient at his house you can learn much at your first glance, and if you don't learn to be quick and sharp in your powers of observation you may start so far away from the real cause of his difficulty as to appear ludicrous and ignorant. The man who is found sitting in a chair partly dressed and propped with pillows, is probably suffering from respiratory or cardiac difficulty of a primary nature, or possibly secondary to renal disease. If his face is flushed and his lips dusky and his skin hot, the chances are that he has pneumonia, but if these things are present with the exception of fever, it is much more likely to be a chronic or subacute process, such as pulmonary congestion, hypostatic in nature, or perhaps a diffuse bronchitis with profuse secretion. The whole bearing of the man who is sitting up, acutely ill, propped up with pillows, as compared to the bearing of the man in the same attitude who is convalescing from an illness and is still feeble, is so different as to be plain even to the most casual observer.

So, too, on entering the room of a patient who is in bed, the expression of the face, the only thing not covered by the bed clothes, may aid you materially in diagnosis. The flush of one cheek in pneumonia, the herpes of the lips in this disease or meningitis, the yellow color of jaundice, the curious pallor of cancerous cachexia, the dry hair and dry skin of advanced tuberculosis or diabetes may all lead you to the trail which you must follow. Again, the wrinkling of the forehead would indicate pain in the head, the drawn upper lip abdominal suffering or the dropping lower lip profound exhaustion. In one case, your patient observes your entrance with interest. In another he absolutely ignores your presence, although in both instances it is manifest that his brain is functionating properly. As you approach the bed you may notice that the bed clothing is exceedingly flat over the abdomen, which indicates that the belly is scaphoid, or if it is exceedingly convex, you recognize the presence of an excess of abdominal fat, of ascites, tumor, or excessive tympanites and fat as the cause of the convexity is instantly excluded by a glance at the neck and face if these parts are seen to be scrawny and thin.

The position of the knees, if drawn up and kept so, may be indicative of abdominal pain and soreness. If semiflexed they may be held in that position because of rheumatism, and the anxiety with which the patient follows your movements with his eyes, fearing lest you may touch his hypersensitive joints, will enable you to speedily determine where the trouble lies, at least so far as preliminary questions are concerned, and, incidentally, if on examining the knee or knees you find them hot, exquisitely sensitive and somewhat swollen, do not jump to the conclusion that the patient is suffering from acute articular rheumatism, but ask questions and look about the body for the purpose of determining whether there has been a source of septic infection, whether it be a boil, a punctured wound, a gonorrhea, a pneumonia, a tonsilitis or a recent attack of influenza. Then, too, if, as you enter the room, you notice that the patient is lying on one side or the other and have been told that he is a sufferer from typhoid fever, you can be fairly certain that his posture indicates that he is not exceedingly ill, or, on the other hand, that some local lesion, like a pleural effusion, makes it more easy and comfortable for him to lie one way than another.

When it comes to examining a child, a very large part of the information which you will gain must be obtained by observation rather than direct examination. During the time that the child is getting accustomed to your presence, much can be learned concerning it by its movements and the expression of its face. Thus, its color, size, condition of nutrition and respiration can be noted. The shape and size of its head can be observed. The condition of its lips, whether moist or dry, red, livid or pale, may be studied, and if the child speaks or cries, the character of the voice or the quality of the cry may give valuable information. In some instances it cries from fright; in others from pain; in still others from anger or hunger, but constant screaming is usually due to the pain of earache or hunger. If it is due to abdominal colic the cry is usually intermittent. If there be pain in the ear, the hand will often be rubbed over the affected side, and if the child coughs and then begins to cry, pneumonia or pleurisy are to be thought of. When the pain in the chest is exceedingly severe, the child may not cry but simply whine or groan, since it has learned that crying increases this pain. A sudden, sharp, piercing shriek may be due to earache and meningitis, and it is particularly characteristic of the latter disease. So, too, if the child is put to the breast, which it takes with avidity and then drops it at once with a cry of pain or anger, either the child has a sore mouth, or the breast is empty, or it may be, coryza or syphilitic snuffles prevent it from breathing through the nose while sucking.

There is also much to be learned as to the general characteristics of a patient by the formation of the features and the play of expression. A thin, mobile lip is usually found in a high strung nervous individual; whereas, the thick lip is usually indicative of a phlegmatic temperament. Dark rings often appear under the eyes at the menstrual period in women, while excessive fatigue and loss of sleep cause a similar condition in men. The face also reveals the peculiar pallor of cirrhosis, of malignant cachexia, or of chronic malarial infection, and often in a young person suffering from syphilis, and in some cases of hepatic cirrhosis, the skin seems to be stretched taut over the bones of the face. So, too, a peculiar duskiness of the face, particularly as to the lips and at the corners of the nostrils will indicate that the patient has been taking excessive doses of one of the coal tar products. Again, the experienced physician often will recognize upon his patient's face an expression of anxiety of which the patient is himself entirely unconscious: expressing no anxiety as to his condition. In other words, it seems as if his body recognized danger even when his mind did not, and this anxious face is often seen in severe, acute croupous pneumonia, in peritonitis and after severe injuries. The face of a gentlewoman, after prolonged suffering from malignant growth or organic disease, often becomes hard and stony, while the face of a man develops a dogged expression, as if he had been told of the true cause of his illness and was rebelling against the inevitable progress of the disease.

Twitching of the eyelids of a child while asleep, or keeping the eyelids only partly closed while asleep is nearly always indicative of serious illness and often the face of a child will be, to use the popular expression, "pinched in appearance." Then we have the spirituelle face and transparent skin of the child who is prone to tuberculosis and nervous affections, the apparently solid and stocky but cheesy looking child who has a tendency to struma or lymphatic disease, or again, the prominent frontal bones indicating rickets, or the bulging forehead with a weazened face beneath indicating a hydrocephalic tendency. Then, too, we must not forget the "fish mouth expression," the stupid face of a child who suffers from postnasal obstruction due to adenoids. The facial expression of the hysterical patient may be exalted, apathetic, betokening rage, grief or devotion, and the sly way in which she watches the examining physician may aid him very materially in discovering that the cause of curious symptoms is hysteria. In paralysis agitans, the visage is distressed and pathetic, yet somewhat intense; in chronic parenchymatous nephritis it is pale and puffy, and often also worn and weary. As death approaches, particularly in abdominal complaints, the Hippocratic face is seen, in which there is sinking in of the temples where the jaw muscles are inserted, great hollows around the sunken eyes, accentuating the orbital edges, the cornea is glazed, the nose pinched, the lower jaw dropped. This face is nearly always seen in approaching dissolution. Then we have the characteristic facies of cretinism, of myxedema and of acromegaly; the awry face of Bell's palsy, a ptosis of one lid indicating hysteria, or a nuclear lesion, often of syphilitic origin. In children excessive sweating of the head producing a wet pillow is indicative of rickets.

If the hands are examined, an immense amount of information may be gained from them, far more than it is possible for me to speak of tonight. They may be cold and clammy, or there may be subsultus tendinum. Carphologia, or picking at the bedclothes, may indicate profuse exhaustion with low delirium. You will recall Shakespeare's description of the death of Falstaff: "After I saw him fumble with the sheets and play with flowers, and smile upon his fingers' ends, I knew there was but one way, for his nose was as sharp as a pen." Hippocrates spoke of patients in acute fevers moving their hands to and fro about the face in the void, as if seeking to gather bits of straw; picking at the covering or detaching objects from the walls, as constituting so many signs of a fatal termination.

The clubbed fingers of cardiopulmonary disease are familiar to every physician, and swollen joints with gouty topi are indicative of gout. There is the claw hand, which may be due to peripheral neuritis, lesions of the spinal cord, or to degenerative changes of the cerebral cortex in the hand area. Then there is the sharply bent wrist in the cerebral palsy of children. There are tremors indicating fear or various types of nervousness, and so I might go on describing conditions of the arms and legs from which a diagnosis can be made without other instruments of precision than your own eyes and fingertips.

What I have said to you tonight will, I trust, serve to impress upon your minds the fact that it is quite as necessary for you to train those powers of investigation which nature has given you as it is for you to become thorough in the manipulations which science has afforded. On the one hand, you must be careful not to reach a "snap diagnosis," based upon a swift glance, until you have carefully controlled it; but on the other hand, you must not be so lumbering in your diagnostic methods that you drag your patient through a dreary morass of annoying laboratory investigations continuing over hours and days when his sole desire is for a diagnosis that will help him to get well. You must be thorough enough not to let anything slip your observation. You must be thorough enough to remember that the diagnosis of one ailment does not exclude the possibility of there being present two or three other ailments; but you must be intelligent enough to recognize that while you are a man of science on the one hand you are humane on the other. The patient has a right to be protected from unnecessary scientific investigation, and he, or she, is not to be considered as an entomologist would consider and study a rare bug lying flat on its back.

In other words, it is by the happy combination of common sense, skill gained by experience, and the use of instruments of precision that you are to succeed in your daily tasks. And it may be added that he who learns how to use instruments of precision but has not cultivated his powers of observation will learn little by their use. He must add all his observations together and be capable of making a reasonable deduction if he is to succeed.

TYPHOID FEVER
ESPECIALLY IN REFERENCE TO TREATMENT

By F. J. Smith, M.D., F.R.C.P.,
Physician, The London Hospital.

In 1886 I was House Physician to Dr. H. G. Sutton (a man with very broad views on medical treatment) and at that period typhoid fever cases were freely and without limit admitted to the wards, and even then I began to think that there was room for improvement in the management of these patients. I saw and treated a very large number, for the disease was then I think more frequent than now, at least we now restrict their admission to the hospital, and consequently I do not see so many cases. I saw them fed with monotonous and nauseating regularity on small doses of milk at fixed regular hours until the temperature had been normal for a week, and I saw the evil effects on ravenously hungry patients of "visiting days" when out of pity for the sufferers, food of all sorts, chiefly cakes, was smuggled in, and very freely devoured by the starved convalescents. I then determined to try more rational methods should I ever come into a position of greater freedom, even though this were associated with greater responsibility. Accordingly from the time I was elected to the visiting staff of a hospital, I have always been feeling my way to a relaxation of those iron bound regulations, and in 1901 wrote an account of my results for the Medical Society of

London. In 1906, I again brought the matter before the meeting of the British Medical Association at Toronto with full details, and from these two sources shall in what follows quote freely. It is a pleasure to note that my example is being followed by others and I hope to see my ideas universally accepted.

HISTORY OF THE DISEASE

It was not until early in the last century that typhoid was separated from typhus and other fevers. The likeness, one thinks now, is of the slightest and the separation of the easiest, though it was not so then. My only reason for mentioning the history and the separation is that it seems certain that by the discovery of the severe ulceration of the bowel attention became so riveted on this point, as to cause to be framed those rigid dietary rules against which my whole object here is to protest, for they represent nothing more than the terror and fright into which these ulcers, by fear of perforation and hemorrhage, threw the practitioners of that day; a fear no doubt justly grounded, but grossly exaggerated, at least in the precautions it led to.

MORBID ANATOMY

From my present point of view this need not here be dwelt upon, though later I shall have more to say on the subject. Gross ulcers of the lower ileum and upper colon, perforation, and purulent peritonitis, profuse hemorrhage, are each at times the predominating feature of the autopsy, but I wish specifically and specially to draw attention to the fact that in a fairly large proportion of cases there is nothing in the bowel to account for the act of dying, the failure of life being accounted for by the condition of the heart, lungs or brain, etc. In other words by a toxemia of the whole body.

PATHOGENY OR MORBID PHYSIOLOGY

This is of considerable interest for my thesis. The disease we know is due to the entry into the body of certain specific microorganisms. The channel of entrance we also know to be usually, if not invariably, the mouth or alimentary canal. The microorganisms themselves belong to the class known technically as septic and pyrogenic, i.e., we have conclusive proof that they can and do penetrate to practically every organ and tissue in the body by means of the blood, and may at any spot cause an abscess.

All this we know as truly as we do other bacteriological facts, but what we do not know is precisely how the familiar ulcers are formed, i.e., whether they are caused by the entry into the body through a Peyer's patch, by the exit from the body, per these glandular masses, or whether the damage occurring is caused by the efforts of the Peyer's patches and solitary follicles to excrete a mere chemical poison; or lastly indeed whether the damage is due to some of the bacilli lodging in these situations and there taking up their residence permanently for the whole duration of the disease. On some of these suppositions it is easy to see that an argument might be based for free and continuous exhibition of antiseptics and purgatives, while another view might mean a strong objection to purgation, a point to be noted later. We know too that the urine can contain the bacilli as well as do the feces, and I can conceive it possible that the sweat and saliva might possibly contain them, though I know of no observations on the point: these channels of exit have an interest for us in considering treatment.

DIAGNOSIS

At the time I wrote my first paper, a somewhat keen controversy was proceeding on a subject which has now shifted its ground very materially indeed. The subject as it stood then might be summed up in the following statement: "if disease, typhoid especially, were only diagnosed early enough and appropriate treatment adopted many lives would be saved and much suffering avoided," the argument then being used with the object of showing the immense superiority of hospital over private treatment and skill; from that point of view it has now been dropped, since every one goes to a hospital nowadays for treatment, but it is vaccines, bacteriolysins, antitoxins, opsonins, etc., that are now being thought of and not simple rest in bed.

It still, however, remains true that the public think that typhoid ought to be diagnosed at a glance by any medical man, a most absurd position for one to take, as we all know, for the diagnosis is often most difficult, I might say impossible in some cases, without the application of scientific tests, which is not always within our reach, for it is necessary to have a bacteriological laboratory handy for such purposes.

The disease itself is essentially due to the fact that the bacillus typhosus has gained access to an individual whose blood or tissues, or perhaps both, are not sufficiently precharged with antityphoid bodies, so as to enable it or them either to slay the bacilli outright, or to neutralize their poisons, without such disturbances to healthy physiological processes as to cause symptoms of ill health (or as Dr. Sutton used to say dis-ease). This somewhat roundabout definition of an actual attack of typhoid fever is rendered necessary by the recently discovered fact that there are people going about the world who have the bacilli present in them without the slightest symptom of the disease; they are termed appropriately enough, typhoid carriers; but assuredly they are not clinically cases of typhoid fever. Between these typhoid carriers and those who die from the disease before its typical manifestations can show themselves, there is every possible gradation, and cases are continually occurring with one or other, and often many of the cardinal symptoms absent; cases which naturally make diagnosis extremely difficult.

An attack by the bacillus goes through the usual stage of incubation, followed by what is known as invasion, most cases coming under medical observation when the former is merging into the latter. The symptoms which are then present, and which may be termed cardinal, are headache of more or less severity, a general feeling of lassitude, a dirty tongue, a loss of appetite, diarrhea coupled with what is pretty nearly the only constant feature, some degree of pyrexia.

He would be a rash man indeed who on this ill defined collection of symptoms made a positive diagnosis of typhoid, but that man is to be congratulated who on meeting with a case of this sort treats the patient as though it were typhoid; and if with the lapse of two or three days the temperature persists and rather rises than falls, any man is distinctly justified in at least suspecting the case to be typhoid; indeed the late Sir Andrew Clark used to teach that an association of headache and pyrexia persisting for five days was clinically sufficient for the diagnosis; without committing myself absolutely to this dictum I believe it to be almost universally true and quite sufficiently true for clinical as opposed to scientific purposes.

A palpable spleen, diarrhea, with gurgling in the right iliac fossa deserves a word of mention in connection with diagnosis in order to cast them all aside as being of no prime importance, for any or all of them may be present or absent in typhoid as well as other toxemias; they are useless as differentiating factors.

A gradual onset of the disease is the usual mode, but a sudden onset, even with a rigor resembling pneumonia, must not be allowed to negative the diagnosis if the above set of symptoms are present and there are no definite physical signs to guide us. Influenza cannot be distinguished from typhoid in the acute cases until time has been allowed for influenzal pyrexia to have subsided, say 2 or 3 full days.

After all, the clinical diagnosis sinks into insignificance beside Widal's scientific test (the exposure of living motile typhoid bacilli to the serum of the patient in fixed dilutions; the clumping, death of the bacilli as a positive reaction), and this test should be applied to all doubtful cases. The difficulties of cost are now reduced to a minimum and the technic of obtaining the serum part of the education of every student, though the application of the actual test itself requires laboratory appliances. This test, however, is not conclusive.

PROGNOSIS

We learn from Bacteriology that in every microbic disease there are three primary elements in prognosis, viz.: (1) The number gaining admission to the body, (2) their intrinsic virulence, and (3) the capability of the body to withstand the immediate effects of the invasion with the poisons at the onset, and to develop protective antipowers sufficient to overcome and demolish them in the later stages.

Now so far as a scientific prognosis is concerned, all of these factors are unknown when we first visit a patient, i.e. in a given individual case, but an experience of many years and of many epidemics has proved to us much more practically than science can do that all the conditions are in a large proportion (somewhere between 79 and 85 per cent. of cases) in favor of the patient; the dose is rarely overwhelmingly large, the virulence is comparatively mild, and the protective agencies are in most people fairly capable. It may, however, be said that the more rapidly clumping takes place in Widal's test, the greater the dilution of the serum in which it will take place, and the earlier the date in the disease at which the reaction is good, the better the prognosis so far as science can test it, for the reaction itself proves that the protective mechanisms of that patient are working well, though even then the forces against them may in the long run prove too powerful.

Clinically the prognosis must always be very guarded, for in the very mildest of cases a fatal complication may ensue despite every care, while in severe cases we know that the battle is going to be serious. There are, however, a few clinical points which have proven themselves fairly reliable in the absence of unexpected accidents. There is first the general condition of the patient; the degree of prostration, the mental condition of alarm or hope, the way in which he takes the fact of being ill. There is, too, his previous history as regards alcohol, starvation, hard work under unhealthy conditions, previous chronic disease of important organs, all of which have an effect, though it is often extremely difficult to estimate correctly the degree. Then, descending to particulars, there is the temperature; if this rises above 104° F., or even 103.5° F. in the first week, it will certainly indicate a severe attack, which is likely to test the patient's powers, while one over 104.5 must certainly make us anxious unless it responds somewhat to antipyretic measures, not antipyretic drugs by the way; the pulse and respiration are features to be carefully noted and watched. There is a very useful old clinical rule with regard to these points which is to expect that 1° F. in elevation of temperature shall carry with it an extra pulse frequency of 10 beats a minute and an extra respiration frequency of two and one half; now if this rule is rather widely departed from we know that either the heart or the lungs (perhaps both) are feeling the strain very severely and that danger threatens from one or the other direction, heart failure being a very common cause of death while typhoid pneumonia (so called) is a very fatal complication for which very little can be done; in the audibility of the heart sounds and the degree of difference between the first and second of them are the physical signs to which very great attention must be paid at every visit. The kidneys should be acting with a freedom say up to 30 ounces or even more during the day. I am sure that a scanty flow is a feature of great moment, and especially so if casts should be found with slight febrile albuminuria. As regards the alvine evacuations I do not think they are of very much importance; a natural expected average is, say four to eight evacuations a day; excessive diarrhea indicates colonic invasion and is of rather bad import; constipation in my experience is a condition that is much to be avoided, though personal observation proves that such cases may do well; if constipation is present it proves at least that the colon is fairly healthy, but it likewise gives an undue opportunity for the absorption of toxins which are certainly present in large numbers in the small intestine. These are the main principles of prognosis. They must be given daily throughout the duration of the disease, should your opinion be required. I do not think the average recorded death rate of somewhere between 10 or 12 and 17 to 20 per cent. should be considered in individual cases.

TREATMENT

This is after all the real reason for my paper; the earlier portions which I have written being only for the purpose of giving to general practitioners a fair working outline of the disease.

I will commence with a rather long quotation from my article in the *British Medical Journal* for Oct. 20, 1906.

I will state in a short paragraph what are my views, and wherein they differ from those ordinarily accepted.

My views, then, are that in the treatment of a patient with typhoid fever, we ought to allow him much greater latitude in the way of diet and the times of exhibition of food than that laid down in text books, as the rules there given have been formulated under the terrors of perforation and hemorrhage, as though these two events were mainly, if not entirely, under the control of the food put into the stomach.

That food may under certain circumstances produce evil effects I am prepared to admit is possible, but these circumstances are very definite and two in number; one of them can be very easily and certainly avoided, while the other is fairly well under control.

By the first I refer to the hard, indigestible, and sharp edges of the seeds of some fruits—for example, the cores and seeds of apples, grapes, oranges and possibly, too, strawberries, gooseberries and figs, all of which I would absolutely banish from the hands of the patient, leaving the juice only to be given by a nurse after straining through muslin.

By the second I mean that whether the food be milk, or as I advocate other things, such as meat, eggs, fish, etc., one may be in danger of giving it a little too freely or injudiciously, and thus coupled with imperfect digestion, it may develop gases to cause distension. I know of no more distressing and fatal complication of typhoid than paralytic distension and tympanites. I repeat that this condition or circumstance is fairly well under control, and do so advisedly; but by control I mean *that we must not feed typhoid patients by routine at fixed and regular hours totally irrespective of their appetites and condition*, but must consider each case and study it on its merits: the very last, smallest, and most insignificant of these merits is the temperature and fear of ulceration, which have too long held a baneful sway over the minds of medical men and nurses, leading them to deny a hungry patient a bit of bread and butter, or an egg because forsooth the wretched thermometer revealed the fact that the temperature was not normal.

I used the expression "a patient suffering from typhoid," and not "a case of typhoid," because it seems to me that with the advent of exact science and the passing away of clinical observation and insight, there is just the very danger against which I am writing, namely, the efforts to treat the disease without any attention being paid to the patient in whom the disease has its temporary abode. The temperature, I admit, indicates that the disease is possibly not yet at an end, but amongst all the facts we have learned of microbic diseases, there is not one that seems to me to suggest, even in the faintest degree, that depriving the patient of some much desired food is a proceeding calculated to end the trouble; one would have thought that Sir William Gull's action in allowing our beloved King, when apparently *in extremis* from typhoid to have a glass of beer would have been of such a striking nature that it would have led to a revision of the ideas guiding our rule bound action in dieting patients with typhoid; yet such is the strong hold that routine and historical authority have over us that except in a few lucky instances or when necessity compels, as in our African campaign, the teaching is still milk, milk, milk, nothing but milk till the temperature is normal, because it was so laid down by our ancestors who saw the ulcers of typhoid and were frightened by them.

If I write strongly, it is because I feel strongly on this point, my sympathies being entirely with the patient and against the canons of custom; but I fully recognize that to write as I do I ought to have some facts to lay before you which entitle me thus to write. I think I have such facts in the statistics at the end of this paper, arranged by Dr. Theodore Thompson, Medical Registrar to the London Hospital, for which I cordially thank him.

Let us now proceed to practical details. The average case comes under observation when the incubation period is merging into that of invasion. The symptoms present are commonly headache of more or less severity, a general feeling of lassitude, a dirty tongue and an upset of appetite and bowel action, all probably coupled with some degree of pyrexia, but curiously enough with rarely any pain beyond slight stomach ache. A diagnosis is very desirable at this period (notification, disinfection, danger of spread, etc.), but beyond a provisional possibility this can rarely be made, and, *so far as the individual patient is concerned* is not of much importance for these symptoms and especially their ingravescent persistence (of which by the way at the first visit there can be no knowledge), are in themselves absolutely pathognomonic of the necessary treatment—viz. bed. This is the only place where a patient presenting these symptoms ought to be, and provided we have insisted with sufficient authority on this one item of advice (an appeal to the thermometer is generally sufficient to secure the advice being followed), we have for the moment done all in our power to mitigate the severity of the attack which may be coming on.

Whether the patient follow our advice or not he will always be the better for having the *primæ viæ* cleared out, and accordingly a few grains (according to age) of calomel or blue pill should always be given followed by a simple saline aperient. It is absolutely certain that such treatment cannot have any evil effect even should the case ultimately turn out to be one of typhoid, though I think it important to mention (it is an item considered perhaps too trivial to mention and therefore frequently forgotten) that a night stool must be requisitioned in order that the patient may not have to walk to a distant lavatory.

Having ordered this medicinal or drug treatment the friends will of course put the inevitable question "what may he eat?"

Inasmuch as this question, as I have already incidentally mentioned, dominates my whole contention and looms so largely in the minds of the patient and of his friends in many of the stages of the illness, it is well to consider its elements once for all, leaving the practical applications to be noted incidentally as we proceed with the course of the disease.

Now in dieting any person who is acutely ill there are four elements to be considered:

1. The appetite of the patient or the wish for food.
2. The functional capability of the stomach for dealing with food.
3. The mere theoretical consideration of the dietetic calories necessary to sustain life.
4. Any digestive peculiarities special to the disease in question, in this instance the question of the intestinal lesions, and we will take up these points seriatim.

1. The appetite or wish for food. Almost invariably the first effect upon a previously healthy person of what is ordinarily termed "seediness" is a loss of appetite often amounting to a loathing for solid food; so common is this at any rate that it must be looked upon as a direct guiding line to an avoidance of such food. Equally common in such cases is a thirst above the average leading to a desire for frequent drinks, and to an appreciation of food which is of a sloppy or liquid character; in each of these directions one negative and the other positive we get imperative guidance for the diet of our patient. This is not quite all, however, for there may be a desire, not for food in general but for some special kind of food, and this is a point which is I think too much neglected; for instance, why should not soup, broth, beef tea, tea, milk or even water be flavored with some sauce or condiment that the patient likes; if he asks for such flavor, why should he be denied a little cooked fruit, jelly or scraped meat should he prefer these to milk or beef tea? I have searched works on physiology and dietetics in vain to find an answer, and failing such a scientific negative I have boldly allowed appetite to dictate to me and never regretted this stand in acute disease. How well I remember to this day the nausea caused in myself by toast water and gruel when all I wanted was a good drink of plain cold water.

2. The functional capability of the stomach. I am sufficiently teleological in my opinions to hold very firmly that in the economy of nature, appetite means the readiness of the stomach for food as well as capability of that organ for dealing with a reasonable quantity of the desired articles (I am not here of course considering

organic disease of the stomach, nor dealing with the pathology of dyspepsia and other curious nerve conditions, pregnancy, etc., all of which offer many exceptions to this rule). Nausea and even vomiting are just as much functions of the palate as they are of the stomach, if indeed not more so, and the incidence of an infectious fever, such as typhoid, does not weaken this connection of palate and stomach, but on the contrary rather exalts it and makes it imperative on us to study the wishes of the former lest we should upset the latter, for nothing can be worse for a typhoid patient than nausea, vomiting and distension of the stomach. I have therefore in dealing with typhoid patients always before me a cardinal rule to allow the appetite of the patient to be within very wide limits indeed as regards quality, but not so freely as regards quantity, the sole arbiter of the diet. The temperature I entirely ignore in the matter feeling absolutely certain—and finding by experience that no harm has ever resulted—that if the wish for food exists the stomach is clean enough and strong enough to deal with the ordinary articles of diet chosen at the desire of the patient in moderate quantity, so that which gets into the intestine will do no mechanical damage to the walls of that viscus.

While thus stating so emphatically my belief in a liberal and varied dietary when appetite asks for it and other circumstances allow it, I must equally emphatically present the other extreme, viz.: that in which the appetite is completely in abeyance. I am quite confident that during the active ingravescent stage and the height of the fever in cases that are moderately or very severe, the digestive function of the stomach and probably of the intestine too is very seriously interfered with. I am sure that during this time the only food that can be dealt with is plain cold water; nature herself proves this to a demonstration by depriving the patient of any appetite or wish for any food. Experience of full stomachs in the post mortem room also strongly supports the view. We are too much afraid of thus starving our patients, we may lead a horse to water but we cannot make him drink, we may pour food into the alimentary canal but we cannot make that canal digest or absorb it: nature starves the patient, if we do not witness the universal wasting in all severe continued pyrexial diseases, and the food we put into the stomach travels only slowly, decomposing as it goes, causing great discomfort, if not threatening actual danger. The idea of feeding a patient in the so called typhoid stage, dry brown tongue, semi or total delirium, etc., on anything but water is to me repugnant in the extreme.

3. The theoretical consideration of dietetic calories necessary to sustain life. It is only necessary to touch on this point in so far as

it has a bearing on the question of how long it is possible or desirable to keep the patient on cold water only? It is generally and I presume correctly asserted that 30 calories per kilo of body weight per diem are necessary to maintain the body weight and vigor while lying in bed, but however true this may be from a strictly scientific point of view, it is very demonstrably untrue from a clinical and practical point in cases of acute illness in which there is no necessity nor desire to maintain either weight or vigor, as indeed Succi and other fasting men have proved it to be false even in health. Failing then any scientific basis for my line of treatment I can only rely on experience and here I am on very secure ground. I cannot speak definitely as to extreme limits, but I can say that I have kept up this treatment for four or five days with the happiest of results and have never found that I have continued it for too long a period, though on one or two occasions I have wished that I had persisted in it for a day or two longer. The wish of the patient for food—in other words his appetite—has been my sole reason for stopping it of my own will, though I have reluctantly yielded to the solicitations of friends who feared that the patient would die of exhaustion, a fear which I am now quite convinced is totally unfounded.

(Case II. of my deaths deserves a word of special mention in this connection. He was admitted on the 21st day of a severe attack and was in a dreadfully exhausted and septic condition with commencing tympanitis. I put him at once on water diet and he improved a good deal, but was so exhausted and weak that even I got frightened and allowed him some food, but unfortunately he could not digest it and the tympanites recurring, he died of exhaustion from toxemia, not I believe from exhaustion of starvation.)

4. Digestive peculiarities special to the disease. What I have hitherto written about appetite, condition of stomach and water diet may of course be applied to all acute febrile conditions, and as a matter of fact are so applied in my practice in such troubles as acute pneumonia, tuberculosis, pleurisy, bronchitis or bronchopneumonia, etc. We have now only to take into consideration ulceration special to typhoid and discuss whether it can be adversely affected by my methods.

There is a universal consensus of opinion that inflamed tissues should be kept at rest as much as possible and especially so when a separation of a bowel slough and possible consequent hemorrhage or perforation are to be feared. Hence it naturally follows that broadly speaking we should attempt to give the intestine as little work to do as possible, i.e. to reduce peristalsis to as small a dimension as is compatible with due nutrition of the body.

Admitting this, we must still remember that typhoid ulcers are of extreme rarity (I have never seen one) so close to the stomach as within say 12 feet, so that if the stomach and these 12 feet of intestine are still capable of some, it may be impaired digestive power, we have a reasonable channel of entrance of diminished amounts of food into the system.

The two alternatives then with which we are confronted are (1) to keep the ulcerated gut clean and empty or (2) to put into it only material not calculated to injure it.

With regard to the first of these alternatives a moment's consideration shows it to be strictly speaking impossible, for the natural epithelial denudation of mouth, esophagus, stomach and gut with the saliva, mucus, gastric juice, bile, pancreatic secretion and succus entericus must in combination form some waste or useful material which has to pass along the canal; probably my water treatment comes as near the ideal of an empty gut as it is possible to get, but certainly two hour feeds of milk do not do so.

If, then, something has to be passed along the gut by peristalsis we come to the second alternative, viz., to see that this something shall not by its physical qualities be calculated to damage the ulcerated gut wall.

To thresh this out completely would of course be to write the whole physiology of digestion, but I think the broad outlines are sufficient for our purpose and these teach us that given a fair working capacity to the teeth, tongue, stomach and upper 12 feet of the intestine, none of the ordinary articles of diet taken in small quantities ever reach the lower ileum in any other condition than that of a purée or soft pasty condition. I must, however, again draw attention specially to the forbidden articles already mentioned when dealing broadly with my line of management, viz., orange pips, grape stones, the small hard seeds of some fruits, such as currants, gooseberries and strawberries, and especially too the hard flaky pieces of the core of an apple and the contained seeds; a fish bone is specially dangerous, probably also the sharp almost flinty particles of husk found in oatmeal or in whole meal bread, as well as nuts, which are not advisable, although the teeth have more to do in their preparation for food than any other part of the canal.

(*To be continued in June*)

WHEN TO MAINTAIN BAD HABITS

By Douglas H. Stewart, M.D.
New York City

No matter what may be the advisability of casting off a bad habit, the fact remains that the habit has become fixed, the body has learned to tolerate it and any change, toward obtaining an ultimate and better condition, involves a transitional and an immediate worse state of affairs; because of shock and disturbance to the mechanism of the animal economy. "You will be worse before you are better" is true as a forecast about an attempt at reformation. Sudden withdrawal of alcohol from a steady drinker and the resultant delirium tremens exemplifies the idea. A man should not contract a bad habit, but having contracted it, maintained it and fixed it, then his physician's dilemma is, shall things be let alone and a minimum or no disturbance be produced or shall thoroughly honest, conscientious and vigorous measures be chosen even if the patient loses his life? A bad habit should never be attacked unless the assailant has plenty of time and ample assistance; a violation of this rule is wooing failure.

It falls to the lot of almost every physician, or he thinks it does, which amounts to the same thing, to prepare a patient for a surgical operation. He may not know how to do it and will usually follow his best judgment, thereby at once being led to cut off alcohol, tobacco, opium, or other drug which is habitually used, and to assume that the bad habit of constipation exists and demands brisk purgation. The purge is administered usually without any clinical history warranting its exhibition, possibly without troubling to obtain any history at all, or if a careful history is taken, its findings might prove clearly by the physical excellence of the patient that infrequent defecation and constipation are not synonymous terms but contradictory conditions. In the aforesaid, the physician's intentions may be good, the operating surgeon may be skillful, but the patient may pass away so easily a few hours or days after the operation that attendants never do understand just "why." Especially is it past understanding if on the same day and in the same operating room a more serious operation is successfully performed on some drug "Fiend" who is loaded with alcohol, opium, other drugs and feces, except as the last may be removed by an enema. The reason for failure in one case and surprising recovery in the other may be summed up by the flippant junior assistant about as follows:

"Man No. 1 died because he had every care. Man No. 2 recovered because he was no good to anybody."

When a surgeon of wide experience prepares a patient for a serious operation, all habits, especially bad habits, are treated with the tenderest neglect, if not actually fostered, until the emergency is passed. He may advise as to matters of hydrotherapy, massage, fresh air, diet and exercise. He may even order an enema to cleanse the colon, but he knows that he cannot break up a bad habit in a short time without also breaking up the patient's resistance and endurance, and he is well aware that the ileum requires some solid contents if it is to obtain its habitual stimulus, without which it is apt to quit work and dilate from exhaustion, to which purgation has contributed.

It is true that the preoperative purge is a routine measure in many hospitals, but a glimpse at the literature will show the handwriting on the wall, and the word written is "Tekel." The advantages obtained by its omission are so clearly evident in the postoperative comfort and progress of the patients that some surgeons are omitting it just to save themselves anxiety.

An experience based on counting vomitings in twenty-six cases leads me to think that a purge given seventy-two hours before operation will give about two postanesthetic vomitings, given forty-eight hours should average three, given twenty-four hours, four, given twelve hours average four the first day and two the second. While an enema averages two vomitings.

Quantity and character of vomit and dejecta are not considered solely the number. The two vomitings after enemata were usually but untinted saliva. The anesthetic was chloroform in all.

It does seem as if there is a time when bad habits should be let alone and that time is when an operation is impending. I have failed with the interference plan and have been on the wrong track. As for purgation, I was taught to use it and have used it *ad nauseam* so far as the patients were concerned.

THE TERRIBLE TRINITY

By E. S. Goodhue, A.M., M.D., LL.D.
The Doctorage—Hawaii

Tuberculosis, Syphilis, Leprosy! as old as the human race probably and as far afield.

So prevalent that each has had its rise and fall like empires, spreading rapidly at certain epochs of the world's history, in particular localities or countries, yet so little understood until a comparatively recent period, that superstition clothed each disease with mystery.

It does seem to me there is not much danger that even eloquent earnestness on the part of a few who feel deeply can have the effect of inducing panic or unreasoning fear in a civilization which for hundreds of years has allowed these diseases to spread, and which even now has periodically to be castigated out of a deep lethargy on the subject.

Indeed, very respectable persons still shrug their shoulders over the matter, and look askance, with amusement if not indignation upon those "alarmists" who are awakened to a sense of the enormity of our social sins.

The general indifference, the absolute want of fear or agitation regarding the transmission of these communicable diseases, is so great even to day as to be almost incredible.

By a sudden inundation or earthquake we are thrown into intense alarm; we fly to the hills for safety, and at once prepare for similar future emergencies, but toward the devastation and loss of life, going on day by day among our nearest and dearest as well as outside of our immediate circle, in the face of facts which inform us of the terrible inroads preventable disease has made and is making among us, we are indifferent, refuse to employ the simplest preventive measures, and grumble if slight restrictions are placed upon our liberty to go and do as we please.

"When it is accepted," says Dr. Adami, "that at least half of gynecological practice is due to gonorrhea and its results; that a large proportion of all cases of infantile blindness is of gonorrheal origin, that practically all cases of locomotor ataxia and nearly all cases of general paralysis of the insane are due to syphilitic origin—when we know that most cases of multiple successive abortions are syphilitic, and recognize the puny, miserable parodies of humanity doomed in most instances to an early death, that too often are the result of syphilis in the parent; when we realize the preventable ills that follow in the train of these venereal diseases, I wholly agree that the time has come when we should no longer refer to these matters by circumlocutions, but for the good of coming generations we should openly wage war against gonorrhea and syphilis. . . . Surely, with the knowledge we now possess—if only with the knowledge that we as a profession possess of the means of a remedy—the time has come for us to unite in eradicating from our midst a scourge which brings in its train such hideous after effects."

Such is the warning voiced by a man who has not only knowledge, but humanity, reiterated by others equally qualified:

"We have during the last decade more especially come to a realization of the hideous frequency of these diseases and their ill effects upon the innocent of the second generation."

After a statistical report of the increasing number of asylums, poorhouses, prisons and other institutions of the sort in our own country, Dr. C. M. Clark says:

"The fact which appals one is that this great stream of degeneracy instead of being lessened is constantly on the increase. . . . One person in 30 is defective. . . . The great class of defectives, with their accompanying burdens of poverty, disease and crime, are traceable to one fundamental cause—depraved heredity." "The tendency to crime," says McKim in his "Heredity and Progress," is essentially inborn. As a rule criminals are physically defective, presenting a varying number of the physical stigmata of degeneracy. Most criminals have a defective brain condition, which is incurable and unsusceptible to amelioration. Disease and degeneracy are dependent upon heredity, so, too, is the tendency to crime, superinduced by these two factors, disease and degeneracy."

Let us glance briefly at the history of tuberculosis, syphilis and leprosy.

TUBERCULOSIS

We are told that the cuneiform inscriptions of ancient Babylon give evidence that tuberculosis was recognized in those early days. Hippocrates describes the disease, and it is spoken of by Isocrates, Aristotle, Celsus, Aretaeus, Pliny and Galen, covering a period from B.C. 460 to A.D. 201.

From Sylvius (1695), who launched the lymph-gland, scrofulosis theory, to Koch in 1865, who then declared tuberculosis to be a "specific infection," is a far cry, yet from the beginning the disease had been enlarging its limits and carrying off its millions. Nothing intelligent or effective was done to prevent the spread, which swept on till the disease became universal. It is not necessary here to give statistics regarding the mortality of tuberculosis in our country or elsewhere. These facts are now being published abroad, but the warning is only recent, and up to fifteen years ago there was no decrease in the spread of the disease.

At last, we are trying to educate the public on the subject, and to induce intelligent care and a wise regulation; to secure proper restrictions without panic or inhumanity. While we use every means to eliminate the disease, we must do no injustice to the victim.

Until now what a waste of life, money and opportunity! Were we unable to look back over long periods of history, surely the progress of mankind onward and upward would seem so slow as to be hardly worth our effort to assist!

SYPHILIS

Dr. Osler says that "as long ago as B.C. 2637 Nusi King, a Chinese writer, described the phenomena of venereal disease and among them the symptoms of lues."

Hippocrates again wrote of it, and few writers of ancient times or throughout the dark ages but took the matter up, for the disease was very prevalent and often of a malignant type, particularly in its invasion of new countries as yet unimmunized. So till 1905, when the *spirochaete pallida* was discovered, the disease undermined the foundations of society.

The nature of the methods of transmission carried the disease everywhere, infecting and inflicting the just and the unjust, being visited upon the fathers and mothers, and upon their children to the third and fourth generation of them that had it.

But strange to say the disease never alarmed any one. Men twitted each other with a sly wink, and cracked jokes about catching "the pox." It was a matter for jibes and quibs even among women. "Marry, hast thy spouse been to Naples"? they would ask.

And to-day we are not much more serious about it, though our women are being slaughtered by its prevalence.

We may say that common decency is not used to prevent the disease from spreading. We have so little care about it, we are so safe from sensation in the matter, that we will not trouble ourselves to make laws for the protection of our sisters and daughters. We do not even warn our sons in any adequate way, and we sacrifice our girls by the wholesale, not even enlightening them as to the possible result of their marriage to our sons.

To sum up the results of this indifference is heart-rending. The records are open in every book treating of the disease of women or children: in every work on venereal disease.

And one of the very strange inconsistencies in our civilization is that while we honor our women and are quick to resent an insult either implied or spoken; while we shoot the man who dares to assault the virtue of our sisters, wives or daughters, and in some respects become almost hysterical over the matter, we deliberately allow a young man to marry our daughter—an innocent, ignorant, unsuspecting wife—when we know that he may have or have had loathsome diseases which he will transmit early to this wife. We know that these diseases once transmitted will either give untold misery to our daughter or cause her death. Yet, I say, we are not insulted, but we indulge in great festivities over the occasion.

We do not ask the young man if he is clean and deserving of that innocent daughter; we do not even want any one else to ask him. That is their affair, we say with indifference.

"Every young man will sow his wild oats; we did the same and took our chances." If such an attitude is not only inconsistent, but shameful and criminal, we may as well cease our efforts to improve any condition whatsoever.

LEPROSY

Last of the trinity and less to be feared than any by the world at large; itself emerging from the mists which have enveloped it since 1500 B.C. The Talmud and the Koran refer to it, and so does the Bible. When from A.D. 636, on through the dark ages, the disease spread, victims were segregated and treated in an almost in-human way, owing to a semireligious fervor or prejudice. The "unclean" were scarcely to be recognized as human. It is estimated that there are over 3,000,000 lepers in the world to day. But the disease is found in specific localities among a special class, and does not spread alarmingly as it did in ancient times.

In no sense is it the menace that syphilis has proven, nor do its victims deserve the name "unclean," as do the majority of syphilitics.

And with our later knowledge of the disease, those who recognize the leprosy as transmissible are dealing with the leper in a human and scientific way, and if not curing the individual, at least preventing any considerable spread of the disease.

Where leprosy is regarded as not contagious or infectious, the victim is allowed to infect his neighbor, so in China, India and these thickly settled countries where people are only partially civilized the disease is more largely prevalent.

Surely it is time for us not only to write learned treatises upon the causation and treatment of these diseases, but to take measures to prevent, for each member of this Trinity of Death is easily preventable.

I quote the following, read at a recent meeting of the Hawaiian Medical Society:

There is a trinity of Death whose dire destructiveness
Is worse than burning brimstone to the lost in Hell, I guess:
Tuberculosis, Syphilis and Leprosy, these three,
A combination to be dreaded you will all agree!

One we have feared since ancient times: one we begin to dread,
The other just as terrible we often take to bed,
And though we screen mosquitoes out, we lie upon the sheet
Which harbors there throughout the night the deadly spirochete!

Then there's your gonococcus chap, he's common too, you bet,
And where he ever lodged himself, I fear he's staying yet—
If he fills pockets, by the way, he's emptied many a score—
It's time we warn our sons of him and close the open door!
It's up to us good doctor-friends and brothers on the Square
To make this old profession shine in honor everywhere;
It's up to us by voice and pen to show each erring lad
That when he breaks a law of health, he's doing something bad!

And what we say will carry weight because we don't profess
That faith will save us from our faults of utter foolishness;
We deal in certainties of life, and all our days we spend
In learning what we can prevent and what we can amend.*

*Selection from "A Medicated Epic," by E. S. Goodhue.

THE RÔLE OF CALCIUM SALTS

By WILLIAM H. NEWCOMB, M.D.
Visiting Physician to Post-Graduate Hospital, New York

I have been greatly interested of late in the use of calcium chloride as a hemostatic, and although my experience of its value in this respect has not been wide it has been sufficient to impress me forcibly with its possibilities. I have administered it solely in cases of hemorrhage resulting from operations on the nose and throat, but, of course, its use has a wider range by far, and therefore it will not be out of place to briefly deal with the history of calcium salts from the therapeutic standpoint. It was to a well known British physiologist, Sidney Ringer, that the recognition of the importance of the inorganic salts for the activity of the living tissue is chiefly due. Ringer, in addition to being a physiologist of the first rank, was a renowned clinician, and consequently was able to speak with authority on the value of the calcium salts from the practical as well as the experimental points of view. Ringer established in 1890 the influence of lime in accelerating the clotting of blood. Ringer and Sainsbury stated that their experiments with calcium chloride left no doubt as to the efficacy of this salt, and made it clear that they had to deal with a generic action which would include, probably, all salts of lime in greater or less degree. Green, another British physiologist, who, although he differed in some respects from these conclusions, practically was in agreement with them.

Perhaps the most striking instance of the importance of calcium to the human economy is in relation to the activity of the heart muscle itself. It was shown by the classical experiments of Ringer that if perfused with a solution free from calcium the heart of the frog becomes feeble in its beats, tending to stop in diastole. Conversely an excess of calcium makes the heart beat systolic in character, and if too great stops the beat in systole. It has been said that calcium is "the stimulus for the heart beat." Addis made some very important investigations as to the influence of calcium salts on blood clotting, but there is no space to enter into these here. The styptic action of calcium chloride has been also demonstrated by Hammerstein, Woolridge, Wright and others. In 1891, Wright in England commenced experiments to determine the action of the calcium salts upon the blood, and described the effects on animals produced by the internal administration of calcium chloride in doses equal to 4 drachms in a pint of water if given to a human being. The full influence was felt in from half to three quarters of an hour, and the results were remarkable. When all the veins of the neck, except the common jugular, were cut across, the blood clotted as it flowed, and at once stopped hemorrhage. His second method was for external use. One per cent. of calcium chloride was added to a solution of nucleo albumin obtained by whipping blood clots in three volumes of water, washing the clots in a stream for not longer than ten minutes and then leaving them in five volumes of water for twenty four hours. This solution or blood ferment was applied externally and controlled the bleeding even from large vessels. It was equally successful in an operation on the cervix uteri, when there was some difficulty in applying ligatures. Wright next proposed the administration of calcium chloride to stop hemorrhage in man, pointing out that large doses would be needed in sudden bleeding, since it was excreted very rapidly by the kidneys. Indeed, so large was the dose required that there were difficulties in the way of carrying out the experiments. However, he finally concluded that as in the majority of cases what is needed is temporary increase of coagulability, which is obtained easily by large doses, large doses should be used. Wright's argument was that as Arthus and Pages proved in 1890 that the coagulability of the blood could be abolished by decalcification and its coagulability could be restored by the addition of calcium salts, it was obvious that in the event of decalcification or partial decalcification that if calcium chloride could be introduced into the blood stream that its coagulability would be increased. He further argued that by the oral administration of calcium chloride this result would be obtained, a line of reasoning which has been since disputed, but which he appeared to prove.

Observations made by Wright and Paramore show in a very concordant manner that the full accelerating effect of calcium chloride is achieved within the first hour after its administration, and it was also brought out as a result of these observations that there are between different individuals conspicuous differences in their capacity for responding to calcium chloride.

At the meeting of the British Medical Association held in 1912, a symposium took place on the rôle of calcium salts. Sir James Barr showed that the amount and rapidity of absorption and excretion vary much in different individuals in health and disease. In certain diseases, as ulcerative colitis, there is not only defective absorption, but also excessive excretion by the bowels, and thus the whole system is depleted of lime and the calcium content of the blood is lessened. Prof. R. Wild drew attention to the want of coordination between the known pharmacological actions of calcium, its pathological relations and its therapeutic uses. Moreover, the question of the absorption of the calcium salts when given by the mouth is unsettled.

Dr. W. Blair Bell and Prof. Wild disagreed with Wright's conclusions as to the effect of calcium chloride on the coagulability of the blood. Bell's view concerning the influence of the calcium salts on the clotting of blood coincide with those so admirably demonstrated by Addis, that is to say, there is an "optimum amount." Less than this causes delay in coagulation, but moderate excess neither increases nor retards the rate of clotting. Great excess, which cannot be produced by oral administration, but only by intravenous, appears to retard the coagulability of the blood. According to Bell, the direct control of hemorrhage is largely due to vasomotor constriction, although if the calcium index of the blood be low, the establishment of the normal allows of normal coagulation. Bell is inclined to think from suggestions of Ringer that the beneficent effect often produced by the administration of calcium salts on urticaria, chilblains and on local edemas is due to the fact that the tissue cells cannot readily imbibe fluid rich in calcium salts. Wright thought that the coagulability of the blood being increased, leakage from the vessels did not occur so readily. Bell thinks this is incorrect, especially in view of our present knowledge regarding the slight or negative effect of oral administration on the coagulability of the blood not deficient in the optimum amount of calcium. Bell, in short, is of the opinion that the good effects of the calcium salts is owing to nonimbibition by the tissue cells.

Chilblains is one of the affections peculiarly amenable to treatment by calcium chloride. According to Wright and his disciples, as chilblains is one of the serous exudations, "serous hemorrhages," the subjects of chilblains possess blood of deficient coagulability and the administration of calcium salts cures the disorder by increasing the coagulating power. Diminished coagulability would seem to be responsible for divers symptoms, such as a type of headache, so called physiological albuminuria, urticaria, weeping eczema and forms of edema, all of which are greatly benefited by the administration of calcium chloride.

G. W. Ross believes that we have in the salts of calcium a rational and effectual means of relieving headaches which are due to a deficient coagulability of the blood. Ross has treated more than forty eight cases with success.

Lauder Brunton thinks that the free use of calcium salts has a tonic action on the heart in cases in which there is a tendency to cardiac failure. He has given calcium chloride in doses of from 5 to 10 grains dissolved in water, every four hours, with the most excellent results in cases of impending cardiac failure in pneumonia.

G. Foord Caijer is of the opinion that calcium chloride in 10 grain doses every three hours is worthy of a trial, especially in cases of typhoid where the hemorrhage, though slight, appears to be continuous.

C. Edward Wallis, dental surgeon King's College Hospital, had most alarming hemorrhages in a patient from whom a tooth was removed. Preliminary doses of calcium chloride were given when several teeth were removed from the same person without excessive bleeding. The last dose given was 15 grains, after which as many as three or four septic stumps were removed at a sitting. Another typical hemophilic was treated in a similar way with equally satisfactory results.

With regard to hemophilia the observations of Wright on normal blood and on that of bleeders show that the coagulability of the blood of the bleeder, like normal blood, can be increased by the administration of calcium salts. These experimental results, Wright points out, are in harmony with the fact that calcium salts have approved themselves to be a mainstay in many cases of hemophilia, both in checking serous hemorrhage and in rendering the blood coagulable, and so arresting actual hemorrhage. Wright goes on to say that calcium salts, however, are not invariably helpful. Nor indeed could they be. For we have in calcium salts not a directly fibrinoplastic element, but only a chemical agent, which acts upon the fibrinoplastic elements of the plasma in such a way as both to promote coagulation and to increase the viscidity of the blood. Moreover, those effects will be exerted only (a) when the drug is absorbed, (b) only when the patient has not already in his blood the optimum of salts, and (c) only so long as the blood is not overloaded with calcium salts. Estimations of the coagulation time of the combined calcium and magnesium content of the blood before and after the administration of calcium salts show that in some normal persons calcium salts are only very indifferently absorbed. L. A. Parry, in a case of gastrointestinal hemorrhage in a young child, gave very frequent 5 grain doses of calcium chloride. On the first day of bleeding none was given, on the second day eight doses of 5 grains were administered every hour through the day, and then every two hours through the night; on the third day the same, and on the fourth day every two hours through the day. The drug was then stopped, as the bleeding had ceased for twenty four hours. Altogether the child took 160 grains in three days. Todd White records a case of epistaxis and bleeding from the tooth socket completely cured by the administration of calcium chloride in 10 grain doses three times a day for ten days.

Mayo Robson, in operating in cases of common duct cholelithiasis after reading Wright's researches in 1890 on the coagulability of the blood, began to employ calcium chloride in these cases with benefit, but in the past few years, since using calcium chloride in apparently heroic doses, he has been able to get at the real value of the drug, which is the one he now always employs in the case of jaundiced patients, both before and after the operation, by the mouth in 30 grain doses, and by the rectum in 60 grain doses thrice daily for several days. M. Icovesco has reported great improvement in patients suffering from Bright's disease from the administration of calcium chloride. G. Mansel Sympson says that after the appearance of Wright's paper in *British Medical Journal*, July, 1893, he administered calcium chloride to patients for several days before performing severe operations, such as ovariotomy, wherein a considerable loss of blood might be met with, and to patients a few days before their confinements, especially if there was any history of flooding at previous confinements. In these cases, whether post hoc or propter hoc, there certainly was much less loss of blood than might reasonably have been expected.

In 1898 Silvestri proclaimed the great value of calcium salts in all kinds of hemorrhagic affections, especially scorbutus. According to him it rapidly restores normal coagulability to the blood. He published the history of thirteen cases which demonstrated the prompt hemostatic action of calcium hypophosphite in all kinds of hemorrhage.

Crombie has used calcium chloride with success in pneumonia, while more than one authority speaks favorably of its action in controlling intestinal hemorrhage of typhoid fever.

Stephen Mackenzie recommends its use in cases of purpura in doses of 20 grains every three or four hours reduced later to fifteen or ten grains.

Gobinet declares that calcium chloride is an efficacious hemostatic which acts by modifying the coagulability of the blood, wherefore its employment is rational. It is only slightly toxic, and generally the stomach tolerates it well.

As said before, personally I have not used calcium chloride largely, but judging from the effects produced when I have employed it, I should say that it is a valuable hemostatic. I have administered it by the mouth in five grain doses dissolved in water after operations on the nose for secondary hemorrhages. As to its effect on the blood the weight of testimony appears to be with Wright, who states that its administration increases the coagulability of the blood. With regard to the mode of administration opinions differ considerably, for while Wright says that if the dose be sufficient and suitable it is absorbed into the circulation and thereby increases the coagulability of the blood, the majority, perhaps, of scientific medical men are against this view. Prof. Dixon, for instance, has pointed out that calcium taken by the mouth is absorbed to a slight extent and is about as rapidly excreted, while other prominent authorities hold that its absorption when administered by the mouth is so slight as to have little or no effect upon the coagulability of the blood. On the other hand, there appears to be sufficient evidence that its administration by the mouth does control hemorrhage and that its administration in the same manner does favorably benefit those suffering from complaints which are said to be due to defective coagulation of the blood, owing to a deficiency of lime salts therein. Testimony with regard to the value of calcium chloride as a hemostatic and as a therapeutic agent of great merit in the treatment of certain disorders is so strong that I have thought it well to call the attention of the medical profession in this country to this somewhat neglected remedy.

(Messrs. Sharp and Dohme have made for years an Elixir of Calcium Chloride which is palatable, the objectionable taste of the calcium salt being disguised, Editor.)

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EDITORIALS

HORMONE THERAPY

Among the many advances in modern medicine, that of hormone therapy is not the least conspicuous. Reduced to its ultimate meaning, it probably means simply the scientific application of previous empirical curative methods. In a word, it comprises the use of animal extracts in the treatment of disease, a practice that can be traced so far back as the ancient Egyptians. In early medieval Europe it was customary to give all sorts of repulsive remedies, which, viewed in the light of modern science, in reality secured to the recipient the advantage of those stimulant organic animal products now known as hormones. The study of the subject is as yet imperfect, for it is barely twenty years since Brown-Sequard startled the world of medicine by his epoch making announcement of some of the effects of organic extracts and products upon the human organism. Of late years the farreaching effects of excess or deficiency of a wide range of internal secretions has grown into a highly specialized branch of therapeutics. The *Medical Press* says that the earlier thyroid, adrenal and testicular organs have been supplemented by a long additional list, among which may be mentioned the spleen, thymus, parathyroids, brain, pituitary body, kidney, uterus, and ovaries. The whole story of organic therapy, indeed, reads like the romantic wonder of a fairy tale. The cure of myxedema and cretinism alone registers a marvel of human achievement. The key to the causation of exophthalmic goitre has been an outcome of this line of research. What more astonishing fact has been registered in the chronicles of medicine than the discovery of the relation of suprarenal secretions in the blood vessels and the circulation generally; of the part played by the pituitary body in acromegaly and other forms of giantism? Attention has been called to this important subject in a special double number of *The Prescriber* for the month of April. It contains a number of articles by well known medical authorities, illustrating the matter under consideration from various points of view. An editorial note reminds us that the name hormone was first suggested by Professor Starling in an article on "The Chemical Coordination of the Activities of the Body," which appeared in *Science Progress* for April, 1907. Referring to the excitatory substances long known to botanists, the writer pointed out the close analogy with the more or less profound dynamic effects upon the ovary cell produced by drugs of the pharmacopeia. The actual words of Starling are of interest, inasmuch as they mark the beginning of hormone therapy. "Since in the normal functioning of the body they (i. e., the internal secretions) have to be discharged at frequent intervals into the blood stream, and carried onward by this to the organ on which they exercise their specific effect, they cannot belong to that class of complex bodies which includes the toxins of animal or vegetable origin. . . . We must, therefore, conceive them as substances produced often in the normal metabolism of certain cells, of definite chemical composition, and comparable in their chemical nature and mode of action to drugs of specific action, such as the alkaloids. This conclusion is borne out by the few investigations which have been made as to the nature of the chemical messengers in the case of certain well marked correlations of function in the higher animals. In consequence of the distinctive features of this class of bodies, and the important functions played by them in the higher organisms, I have proposed to give a special name to the class, viz., hormones, from I arouse or excite." Since these words were written a great amount of information has been added to our knowledge of organic therapy. both in its individual and in its combined functions. The loss of the hormonic balance is written large in the morbid phenomena of the human body, and its restoration forms a main principle of modern therapy. The part played by the hormones in the destruction of toxins is another important function. There is undoubtedly a great future before hormone therapy, and a knowledge of its present application is essential to all who practise the art of medicine.

HOSPITAL RELIEF FOR RURAL DISTRICTS

In an extensive experience of over twenty years in studying the sanitary conditions of the rural districts in many of our States the fact has been seriously impressed upon us that there are tens of thousands of men, women and children in our open country who suffer preventable pain, who are inhibited in their physical, mental, economic, and moral development, and who in many cases either become physical wrecks or die because of the simple reason that they do not, and under existing local conditions they can not, have proper medical and especially proper surgical treatment, writes Ch. Wardell Stiles. United States Public Health Service. Wardell continues:

The greatest evil today in our rural States is undoubtedly the existing medieval sanitation. There are numerous counties in which sanitation in respect to soil pollution and care of milk is only 1 to 10 on a scale of 100. The recent wonderful awakening on the part of the State Boards of Health and State Boards of Education in respect to these points can not be praised too highly. The initiative in solving this particular phase of rural needs is therefore taken, but we must not deceive ourselves with the idea that the reform is to be accomplished in less than a generation—at least of a school generation—for the ultimate solution of this problem lies in the development of a public sentiment among the people which will demand the passage and enforcement of State and local laws that will decrease pollution of the soil and of the water and milk supplies.

District nursing is another sad and crying need of our farm areas, about the beauties of which much has been written. Though not blinded to this latter side of our open country, experience has brought us into closer contact with the poverty, ignorance, and filth (not to use a stronger word) of the average home in the agricultural districts into which studies have been made. The average country woman (white or black) has exceedingly rudimentary ideas on the subject of cleanliness, cooking, housekeeping, and care either of children or the sick. Owing to the absence of reliable death statistics for so many of our counties, it is impossible to present figures to prove how many infants and children die unnecessary deaths because of pure ignorance on the part of their mothers. To meet the needs of this side of our problem, the district nurse seems capable of playing a most valuable rôle, and the present movement in this direction, a form of welfare work still in its infancy, is one that deserves cordial moral and financial support.

The average farmer's wife is never attended during confinement either by a physician or by a trained nurse. The aid at her disposal is only that offered by her family, her neighbors, or by some (usually ignorant and dirty) midwife. As a result, injuries very frequently occur. Not having before them either the knowledge or possible surgical relief or the opportunity for such treatment, many country mothers bear unnecessary burdens through their sad and arduous lives. Numerous observations persuade us that authors who write on the great advantages of life in the open country have not based their statements upon a study of the hardships of the laboring rural mother (the term "laboring" being here used in its double sense). A traveling hospital could bring great relief to thousands of these mothers who now go through life without even dreaming of the possible advantages open to the poorest mothers in the slums of our cities.

In studying the children one is deeply impressed with the number who are handicapped both in their physical and mental development by the fact that the ventilation of their bodies is impeded by growths (enlarged tonsils and adenoids) that might easily be removed. In many instances, also, the eyes need attention that is now beyond the reach of the families.

Education in various lines is brought within the reach of country families; they do not have to send their children to the city schools. Farm demonstration work is being brought to their homes; the farmer can learn how to increase his crop of corn, etc., without the necessity of his going through an agricultural college. Why not bring more health within reach of the farm laborer and his family?

The local physicians do a vast amount of charity work, but the life of the country practitioner is a hard one; the distances between their patients are often considerable, and these men simply can not afford to do for the poorer farmers what the free city clinics are doing for the city poor. The county health officers are underpaid as it is, and it is not right to expect them to conduct a large charity practice when they are already making a decided sacrifice in serving in their official capacity. Further, the country physician is expected to cure everything from the falling out of hair to the ingrowing of toenails, and neither time nor opportunity exists for them to go into the throat, nose, ear, eye, and "repair" work that is in constant demand of attention.

To meet the needs of the medical work in the different localities there may be, of course, different possibilities, but one of the most feasible methods would be a hospital train, which could make short trips in those localities that are not today supplied with specialists on the eye, ear, nose, and throat, and in gynecology. Unless in certain districts these phases of rural medical work are turned over to medical workers, there will be thousands of American country women who will continue in their unnecessary sufferings, and tens of thousands of American children who will attempt to develop without proper body ventilation, despite the much vaunted "pure, fresh, country air."

HYGIENE OF THE VACUUM FLASK

Among the most practical adaptations of science to the needs of domestic life the vacuum flask must be accorded a high place. Simple in construction, and consisting of nothing likely to contaminate any liquid food or beverage placed within it, this ingenious contrivance has proved a great boon to thousands of late homecomers and others who require something hot when fires are out. The flask must be kept scrupulously clean, however, and the cork must be frequently changed, otherwise milk or tea is apt to acquire a peculiar flavor when stored for many hours. Unless the fluid has been sterilized previous to placing within the flask there is just the possibility of bacterial development after keeping for some time, which might prove a source of danger to the consumer. But this would not be the fault of the vacuum flask. In the case of milk set aside in such a receptacle and designed for infant feeding it would be desirable not to place the warm milk therein without previous pasteurization or boiling. Such a warning has recently been issued by the State Board of Health of New Hampshire for the use of those responsible for the care of infants. The circular states that "the keeping of warm milk for several hours in one of the receptacles referred to is the exact reverse of reasonable sanitary precautions to preserve milk in a safe and palatable condition. The changes that take place in milk at a comparatively high temperature are such that, when given to infants, digestive disturbances, diarrhea and other pathological conditions sometimes result, often terminating fatally. The manufacturers of at least one of the socalled vacuum bottles, recognizing this danger, call attention in their descriptive literature to the fact that warm milk should not be kept in such a receptacle unless it has been previously pasteurized or sterilized. If this simple precaution be observed no harm will come from the use of the vacuum flask in the nursery, while attention to ordinary cleanliness will ensure the contents remaining as sweet and wholesome at the end of twenty four hours as when they are first put in.

HEROES OF MEDICINE

Before contemplation of the great storm and flood disasters of the West fades into dim memory it is fitting to recognize the heroism, the sacrifice and the devotion of members of the medical profession and of nurses. There was a prompt response from all sides to the call for material aid. But the quickest response of all was that to the demand for physicians and nurses with medical supplies. These, as volunteers, rushed to the scene on the first special trains, to labor without money and without price, and often at grave personal risks of life.

There was, however, a dearth of faddists and of the promoters of patent panaceas. These could spin fine theories and make fine promises in piping times of ease, ministering profitably to the "comfortable chronic diseases which are attendant on wealth and indolence." But when storm and flood swept the land, with pestilence in their train, there was sterner work to be done, suited only to the hands of the approved practitioners of tried schools. It was a condition and not a theory which confronted them.

In time of war surgeons and nurses hover on the very brink of the zone of fire, to succor the wounded as soon as they fall. In scientific investigation of disease and research into methods of prevention and cure doctors have frequently risked and sometimes sacrificed their lives. So in the great cataclysms of nature, when a Pelee erupts, a San Francisco is shaken or an Ohio is overflowed, the members of the healing guild exhibit the same high heroism, making the scalpel, no less than the sword, and the nurse's cap, no less than the warrior's plume, the badge of chivalry.

THE SPOONFUL

Today we all have a mania for standardizing our drugs. Tinctures and tablets are measured according to their total active principle, their percentage of alkaloid, and finally their physiological effect on a guinea pig's blood pressure. This is probably a sign of progress, and is certainly a good "talking point" for the wholesale druggist's traveler. We forget, says the *Medical Press*, however, that we have not yet standardized our patients, and that it does not really much matter to how many decimal points of a milligram we measure our dose. The important thing is whether the sick man has too little or too much for his own peculiar personality. Another way in which we make prodigious efforts to stultify our passion for proportion is our use of a spoon for the ultimate delivery of the drug. The capacity of different tablespoons varies by anything up to a drachm, and fillers' ideas of a full spoon are wonderfully inconstant. We go to the trouble of specifying a special digitalis preparation instead of the official tincture in the belief that we know exactly how much of the various alkaloids with the prefix "digit" the patient is getting. A variable spoon is variably filled with our meticulous mixture, and we are no wiser than we were before. Measure glasses are cheap, and an average patient could, after a few lessons, be relied on to pour out four drachms with a certain amount of accuracy. Let us leave spoons to be measures for our wrath, not for our medicines.

DISPOSAL OF NEW YORK'S SEWAGE

We wonder how many of our readers ever give a thought to the manner in which New York city disposes of its sewage, or realize the vast amount of splendid work being done by the Metropolitan Sewerage Commission. The commission has just issued Numbers VI and VII of its preliminary reports on the disposal of New York's sewage, and these contain a constructive program designed to be the beginning of an engineering work of the first magnitude.

To the student of sanitary science it has long been apparent that the conditions at present attending the discharge of sewage into the waters of New York harbor are most unsanitary, and that a radical change in the method of disposal is urgently called for. The commission finds that the present most pressing problem is to relieve unsanitary conditions in the lower East River. Here within a distance of four miles about 200,000,000 gallons of sewage are discharged every 24 hours from about 50 outlets located along the crowded shores. Of the various possible methods of disposing of this vast amount of sewage, only three deserved more than passing attention, namely, collection on Barren Island and treatment there with a discharge of the effluent into the sea; collection near the west side of Staten Island and treatment there with discharge of the purified effluent into Arthur Kill, or, by tunnel, into the Lower Bay; and lastly, collection on an artificial island to be built about three miles from land on a line running from Sandy Hook to Rockaway Point. All the treatment required here would be screening and sedimentation, with disposal of the effluent into the sea. The sediment would be carried to sea in boats and dumped.

Of these three plans, the last mentioned has been adopted as in accordance with the best engineering precedent; it avoids offensive, complicated and uncertain processes of purification, and is based upon a careful consideration of the needs of the whole harbor. Moreover, it leaves the waters of the inner harbor in a sufficiently improved condition for the assimilation of such sewage as cannot be kept out of the waters without wellnigh prohibitive expense.

With the rapid increase of this city's population it is imperative that some plan for the relief of the harbor from sewage pollution be undertaken at once. As far as we are able to judge, the plan proposed by the commission is sound and satisfactorily meets the situation. We trust there will be no delay in carrying out this important sanitary work.

DIGEST OF CURRENT MEDICAL LITERATURE

The Nature of Abdominal Rigidity.—Abdominal rigidity is often associated with disease of the viscera, especially with appendicitis, gastric or duodenal ulcer, and disease of the gall bladder (T. Watson Wadsworth, *Medical Press and Circular,* April 16, 1913). A similar reflex rigidity can be produced experimentally by stimulation of appropriate afferent nerves.

Dr. Mackenzie has described the nature of abdominal tenderness and hyperæsthesia in his book on "Symptoms and Their Interpretation." His suggestion is that the rigidity is also reflex.

Text books on medicine do not sufficiently emphasise the presence of rigidity in cases of gastric and duodenal ulcer. It has been frequently demonstrated that ulcer of the stomach and duodenum has produced pain in the absence of any inflammation of the parietal peritoneum. But it is not so generally known that rigidity has been met with in cases where the parietal peritoneum was quite normal. The fact that rigidity of the abdomen is produced by stimulation of the central end of a sympathetic nerve is in accord with the above clinical observations.

The rigidity met with clinically in ulcer of the stomach or duodenum is confined to the epigastrium and involves the recti chiefly. If the ulcer perforates, then the rigidity becomes much more marked, but in the early stages it is confined to the upper abdomen, and during anesthesia this part of the abdomen is the last to relax. The rigidity met with in disease of the gall bladder is most marked in the rectus of the same side, but may involve the whole of the abdominal muscles on that side.

It was found that rigidity of the recti and the other abdominal muscles could be produced by stimulating the central end of the sympathetic nerves which supply the stomach, duodenum, pancreas, and the gall bladder. The contractions following the stimulation were tetanic, and lasted as long as the stimulus. The recti were divided into segments between their motor nerves. The upper segments became more contracted than the lower. This contraction was obtained after the vagi were divided in the neck. Hence the vagus is not the afferent path for these reflexes. The rigidity met with in disease of the vermiform appendix is also probably a reflex, because stimulation of the central end of the sympathetic nerves which supply this portion of the alimentary canal is followed by a contraction of the abdominal muscles.

Rigidity of the abdomen has been present during the life of patients suffering from an ulcer of the stomach whose parietal peritoneum was found to be quite healthy at the autopsy. In the case of an inflamed appendix, or one which was not even inflamed but contained a calculus, rigidity has been exhibited, although at the operation no involvement of the parietal peritoneum was found. Therefore, from the results of necropsies, from the evidence of operations, and from the fact that rigidity can be produced by stimulation of nerves which do not supply the parietal peritoneum, it is clear that involvement of this portion of the peritoneum is not an essential factor in abdominal rigidity.

Rigidity following disease of the pleura is less common than that due to disease of the abdominal viscera, but not less important. Cases of pneumonia occasionally present a rigidity of the abdomen which simulates that associated with general peritonitis to such a degree that a laparotomy has been needlessly performed. The only way this could be produced is a reflex resulting from stimulation of the afferent nerves of the pleura.

Experiment supports this view. It was found that when the central end of an intercostal nerve was stimulated there resulted a contraction of the abdominal muscles. The contraction varied with the particular nerve stimulated. The rigidity from the lower intercostals involved both sides and was more general than that from the upper nerves. The uppermost intercostals when stimulated caused a reflex contraction of the upper segments of the rectus on the same side only, and a slight contraction of the external and internal oblique on that side. There was a gradual transition from the limited contraction produced by stimulation of the uppermost intercostal to the general contraction met with when the lowest intercostals were stimulated, so that the extent to which the rectus was contracted could be used as a guide to the nerve stimulated. Remembering the relation between the extent of the contraction and the intercostal nerve involved may be of great value in locating the site of the lesion from the rigidity when present in disease of the lungs.

These experiments demonstrate the reflex nature of the abdominal rigidity met with in some cases of pneumonia. This condition is so well recognized that in all cases of abdominal rigidity a very careful examination of the lungs should be made before submitting the patient to an operation.

Wadsworth has noticed rigidity of the rectus in pleurisy; the rigidity was confined to the same side. As an instance of this rigidity he quotes the case of a patient suffering from phthisis. There was well marked rigidity of the upper portion of the rectus on the same side as the cavity. The patient was suffering from severe hemoptysis; under these circumstances the danger of making a thorough examination and the difficulty of localizing the hemorrhage are well known. But the examination of the abdomen in this case revealed the site of the bleeding without any of the above disadvantages. It is suggested that an examination of the abdomen in similar cases may be of great assistance in determining the region to which counterirritants should be applied or where a pneumothorax should be produced to prevent the bleeding.

When the visceral pleura was stimulated by a faradic current, no contraction of the abdominal muscles was elicited; but when the parietal pleura was stimulated there followed a reflex contraction of the abdominal muscles varying with the portion stimulated and corresponding to that produced by the excitation of the neighboring intercostal nerve.

Blood pressure tracings were taken when the central end of the superior mesenteric nerve was stimulated. Each stimulation was associated with a rise in blood pressure. A rise in blood pressure is accepted by most authorities as indicating pain, so a record of it may be taken as a graphic representation of pain.

The rise in blood pressure followed almost immediately on the stimulation of the central end of the above nerve. This is in accord with Dr. Mackenzie's view that the pain experienced in disease of the abdominal organs is a viscerosensory reflex.

On one occasion a very interesting alteration in the rhythm of the heart beat resulted; the beats became much larger and the frequency halved. The frequency was reduced from 192 per minute to 96 per minute. This resembled heart block. The vagi were divided, and the phenomenon disappeared. He was unable to offer any explanation except that there was vagal inhibition. He is not aware that a similar condition has been met with clinically in disease of the alimentary canal.

Feeding in Its Relation to Infant Mortality.—Doctor Winters, in closing a discussion on "Feeding in Its Relation to Infant Mortality" at a stated meeting of the Medical Association of the Greater City of New York, October 21, 1912, said that if one would come to his clinic at Cornell Medical College some day, he could convince him of the evils of pasteurization of milk. There he would see, almost dead, infants which had been fed upon this milk. When extreme heat was applied to milk the product was liable to give rise to the worst form of scurvy and rickets. When the heat was not so great the milk would still cause scurvy, rickets. This was the case with sterilized milk, and some years ago, when sterilization came into vogue generally, there was among infants an immense amount of scurvy, which was almost invariably diagnosticated as rheumatism. Sir Thomas Barlow Barton was among the first to describe the condition, and it became known as Barlow's disease. The same was true, in a lesser degree, of pasteurization. Already this autumn he had seen two cases of scurvy from pasteurized milk, and he could not but regard the present widespread predilection for this kind of milk as a positive calamity. No one ever saw a plump and perfectly normal baby which had been fed for a prolonged period on pasteurized milk. At a single clinic he had had no less than four infants with practically no life in them from this cause. As to withholding water from the newborn child, he did not mean to lay this down as an absolute rule; but it was true, as he had said, that the giving of water generally had the effect of making the infant refuse to take the breast. If it did not have the water it would be compelled to nurse. The sugar he employed was that which nature furnished, milk sugar. In his opinion there was no excuse for using malt sugar or malt soup, and, indeed, every malt preparation was absolutely wrong. It was not physiological, and physiology should be our only guide. As to the vomiting of infants, a great deal of it was due to excessive handling of the child, and as soon as this was discontinued the vomiting would cease. For the young infant he avoided all cereals absolutely, as unphysiological. As he had just said, he had but one guide in his feeding. Why should we give vegetable foodstuffs when there were no secretions which would digest them? In this matter he took his ground from the standard text books on physiology in this country and Europe, and therefore when certain men asserted that they had found that the young infant was capable of digesting cereal food, he did not believe them. No such statement could be found in any established work. In reply to a question from the president, Doctor Wilcox, Doctor Winters said that the top milk used varied according to the age of the baby. The method he employed had during a course of years been most carefully worked out both practically and in the laboratory. He had tested it thoroughly in his work, and then his results had been confirmed by a series of laboratory experiments by such men as Doctor Lederle, Doctor Adriance, and Professor Sherman. He could, therefore, speak with some confidence as to the pronounced success which had been obtained. On the other hand, neglect to consider the physical behavior of proteid had led to grave errors and an immense amount of trouble in infant feeding.

Functions of Bile.—Rogers, *Presse Médicale,* February 19, 1913, discusses the functions of bile in the light of recent experimental work and concludes that the biliary secretion contains no digestive ferments, but exerts a zymosthenic influence in that it augments the action of certain enzymes: the pancreatic amylose and the intestinal lactose. It possesses the property of attracting from within the intestinal cells the ferments elaborated therein, notably invertase, and thus plays an important rôle in the digestion of certain sugars. It cooperates in the digestive process and in the absorption of fats. It also exerts a special action on the albumins and peptones, which it first precipitates from acid solutions and later redissolves. Although devoid of bactericidal properties, it hinders intestinal putrefaction by favoring the growth of certain microorganisms, such as the colon bacillus, at the expense of the anaerobes, which are the chief factors in putrefactive processes, by diminishing the secretion of ferments elaborated by the bacteria themselves, and by hindering the action of bacterial ferments of substances susceptible to fermentation. It lowers the activity of toxic products of bacterial origin; and finally, it prevents the coagulation of mucus by the mucinose present in the intestine; disturbances in the secretion of bile are accountable for certain forms of mucomembranous enteritis.

Danger of a Sudden Change from a Horizontal to a Vertical Position in Acute Diseases.—Léduc, *Medica Semana,* January 23, 1913, abst., N. Y., *Medical Journal,* March 22, 1913, states that we have no specific treatment for a number of acute diseases and that therefore the physician must guarantee the care of the organs and the regularity of their functions until recovery is assured. The principal factor in the preservation of life is the circulation, so that resistance of the heart is one of the main symptoms on which to base a prognosis. Léduc says that the most frequent and by no means the least danger for the heart is a sudden change of the patient from the horizontal to the vertical position. It is frequently observed when a healthy individual rises suddenly to assume a vertical position, the heart yields, the blood pressure is lowered and the brain becomes anemic, consequently, dizziness and vertigo are manifested. He believes that a sudden change of a patient to a vertical position lessens the probabilities of cure in cases of severe fever as well as in many acute diseases.

Albumin Milk for Infants.—J. Cassel, *Archives für Kinderheilkunde,* IV-VI, 1913, reports experiments in the nutrition of ailing infants with albumin milk, made by evaporation of a solution of albumin. He gave from 180 to 200 grams of albumin to each kilo of body weight. Forty six cases were treated for a sufficiently long time to obtain reliable results. There were fifteen with acute dyspepsia, three of subacute dyspepsia, nine of chronic dyspepsia, and nineteen with beginning intoxication. The diarrhea soon improved, weight increased while a return to a milk diet was soon possible. He declares that there is no superior dietetic method than this in treating diarrheas and dyspepsias in infants; nor no other method which allows of a more speedy return to a normal diet, which may be resumed in many cases in from ten days to two weeks.

New Views on Diabetes.—Rodriguez, *Revue de Médicine,* February, 1913, presents new and interesting views on diabetes mellitus. He states a doubt as to whether the disease as such really exists. The retention of the chlorides and their excretion in the urine appears to him to be of the greatest importance. It is shown, he states, that a high degree of tension may cause an undue amount of cerebrospinal chlorine content, and hence glycosuria by counterirritant action. According to which theory the treatment would consist of diminishing the food intake, when excessive, and especially the intake of chlorides; the latter in those cases when the excretion of sugar is merely a sign of a chlorine intoxication. This would explain the efficacy of the green vegetables and potato days in the treatment of diabetes.

Drug Therapy in Intestinal Flatulence.—Professor Boas, in discussing the various forms of flatulence, their etiology and treatment (*Berliner klinische Wochenschrift,* 1910, No. 3) states that the leading factor in the treatment of the most common form of flatulence, that of alimentary origin, is, of course, the exclusion of fermentable foods from the diet. Since individuals differ markedly with respect to their digestion of different foods, their tolerance for the various foodstuffs must first be determined. Milk, buttermilk, eggs and raw meats are mentioned among the foods most apt to result in fermentation. Potatoes, too, are frequently responsible for flatulence in individual cases.

Boas has found magnesium salicylate the best antifermentative drug with the peculiar advantage of not causing constipation. He uses it in doses of 15 to 30 grains three times per day. Where constipation and catarrhal inflammation are associated with the flatulence, small repeated doses of castor oil are recommended.

SOCIETY REPORTS

THE NINTH TRIENNIAL SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

Was convened at the New Willard Hotel, Washington, D. C. on Tuesday, May 6, 1913. President Wilson was expected to open the Congress, and the *Washington Evening Star*, with true newspaper enterprise, stated that he was present and made an address of welcome in which "he paid high tribute to the work of the surgeons and medical men of the United States and the world," but as a matter of fact, he did not appear, and Col. William C. Gorgos, the President of the Congress, called the meeting to order.

The sessions of the Congress, as well as those of its component societies, were well attended, in spite of the weather, which has been unseasonably warm and sultry, and the added discomfort of a plague of gnats—hitherto unknown in Washington—which the scientists claim are winged plant lice, but which the superstitious regard as the ghosts of the flies that were "swatted."

The Congress opened with a symposium "On the Study of Renal Function."

Dr. Henry A. Christian of Boston read the first paper on this subject, in which he stated that in the diagnosis of pathologic lesions of the kidney, functional tests might be expected to yield information on two points: first, were the kidneys diseased; second, what type of pathologic lesion did they show? A review of the method of testing renal function by measuring the excretion of salt, water, lactose, potassium iodide and sulphonepthalein, by measuring the retention of non-proteid nitrogen in the blood, by the determination of diastase in the urine, by determinating the pressure of indican in the blood or by estimating urinary acidity, showed that great aid had been given in determining clinically whether the kidneys were diseased, but distinctly less help had come in answering the second query, what type of pathological lesion did the kidney show? As in all forms of clinical diagnosis, not a single test, but many, yielded the data on which the diagnosis must be based. In this sense, these functional tests had yielded new data, and a discriminating valuation of this, along with a consideration of that furnished by other methods already long in use justified us in making diagnoses of renal conditions with increased certainty We could expect fewer failures in renal diagnosis than before we had these functional tests, but so long as microscopic study failed to yield a demonstrable anatomical change to correspond with all observed functional variations, so long would we remain unable to make in advance an exact anatomical diagnosis, which in most cases would prove to be correct, when the pathologist examined the kidney. Dr Leonard G. Rowntree of Baltimore spoke of "The Prognostic Value of Studies of Renal Function" He stated that the clinical diagnosis having been made in any individual case, certain problems had to be investigated before offering a prognosis. These were: 1. What pathological condition underlay the clinical picture? 2 Was the condition confined to the kidney, or was any other system, as the cardiovascular, involved? 3. What was the functional capacity of the kidney? Was this temporary or permanent? 4 Was the condition amenable to treatment?

Dr. Rowntree said that all the tests of renal function had proved of value, some much more so than others. Those of most importance in testing renal capacity were dye substances, especially phthalein; the tests of retention through the quantitative determination of the concentration of certain substances in the blood, cryoscopy, total incoagulable nitrogen and urea. The phthalein test was of value in all pathological conditions, whereas certain cases of severe nephritis, even in uremia, showed no marked increase in rest nitrogen or urea. Functional studies revealed only the excretory capacity of the kidney, but did not make the diagnosis nor settle the prognosis. They should be used as a matter of routine, in conjunction with other procedures. The phthalein test was the one for general use under all conditions. Its findings could be verified and its indications strengthened by the employment of selected tests in different conditions. The iodide and salicylate tests were not of great prognostic value. Lactose was unreliable, and the urinary urea was of value only in relation to unilateral renal disease. Phloridzin had a tendency to exaggerate the degree of functional injury, and hence it was not of great value. Salt, in a marked tubular hyposthenuria, carried much prognostic significance; otherwise, the chlorides were of only slight prognostic value. The value of total incoagulable nitrogen and of urea in the blood had been enhanced by the introduction of the newer and more accurate methods of Folin and Marshall. A study of the combination of these tests was needed in order to determine the extent of parallelism in their findings.

Dr. Theodore C. Janeway, of New York, spoke of "The Study of Renal Function; Its Bearing on Treatment." He said that in the domain of chronic diseases of obscure origin, diagnostic skill, inadequate though it might be, usually ran far ahead of remedial measures, and in no disease was this more apparent than in the medical diseases of the kidney. From a broad standpoint, the sulphonephthalein test and the less satisfactory ones which it had replaced had greatly contributed to the effectiveness of the treatment. The internal treatment of renal disease had made definite progress along two lines: (1) The study of experimental nephritis in animals had made clear the existence of isolated disturbances in the excretion of individual constituents of the urine, and the existence of definite types of abnormal reactions of the diseased kidney to stimuli. These had been found to have their counterparts in human nephritis. (2) The accurate study of the salt and water exchanges in human nephritis, and their relation to edema, had resulted in a precise, and scientific method of treatment which was highly effective in certain types of renal disease. Water tests were most important guides to treatment, especially in the convalescent stage of acute nephritis. When testing for the excretion of water, there should be absolute uniformity in the salt intake. Therapeutic means of combatting nitrogen retention were conspicuous by their absence, aside from enforcing a physiological economy of protein on general principles. The observation of the uncoagulable nitrogen of the blood was of great importance prognostically, although it did not make the outlook any less grave. In the same way the sulphonephthalein test could not serve in any way as a guide to treatment; in chronic passive congestion of the kidney it might frequently afford a most useful measure of the degree of improvement in kidney function during treatment. The treatment of edema was much more satisfactory. The salt-poor diet remained the most effective measure in the treatment of the edamatous types of subacuta and chronic nephritis. The one essential guide to treatment, as Widal's studies had shown, was the absolute salt balance By the exact estimation of sodium chloride tolerance, and the adjustment of intake at a point below the ability of the kidney to excrete salt, chronic cases might be kept free from oedema over long periods of time, even where functional recovery was not complete. At the same time, the management of the water balance demanded edema over long period of time, even where functional recovery was not the least contribution, which the study of renal function had made to the treatment of nephritis, was its method of visualizing the actual response of the kidney to therapeutic measures from day to day.

Dr. Hugh Cabot, of Boston, said that many surgeons had neglected this question of kidney function, assuming that the study of the urine would give them sufficient data. It had already been pointed out, however, that the routine examination of the urine would not give to the surgeon information upon which he would feel justified to act, although many still held the assumption that it would. The speaker said he wished to discuss the value of these studies of the renal function in enabling us to tell beforehand the probable safety of any operation. In his work, he had come to rely upon comparatively few. None of the color tests seemed to him to possess the value of the sulphonepthalein test of Rowntree and Geraghty He had employed this in a large number of cases, and had come to esteem it very highly The other test he had found valuable was the one of the nitrogen retention, which had recently been placed within the reach of the average clinician. These two tests, properly carried out, gave one a very accurate idea of the prognosis.

Dr George Dock, of St. Louis, said he could add very little to Dr. Cabot's remarks, but he wished to call attention to the noteworthy fact that in the discussion of this interesting subject we had had statements from men who were actually doing the work and observing its results, both experimentally and clinically. While the examination of the urine was very old, we had until recently suffered from a tendency to rely on single diagnostic methods. For a long time we laid great stress upon the presence of albumin, or casts, or urea, neglecting the more complete and thorough examination of the patients, such as the blood pressure, etc., the importance of which could scarcely be over-estimated, and which we could no longer afford to neglect. Immense practical gains had already been made from this careful study of the renal function, and still more could be looked for in the future, after more of these cases had come to autopsy We needed not only a great deal more knowledge regarding kidney function, but also regarding kidney pathology. After we had applied the methods that had been described, and no doubt others that would be discovered, to the kidney functions during life, then more complete anatomical investigations would give us an exact knowledge for prognostic and diagnostic purposes

The discussion was continued by Dr. John T Geraghty of Baltimore, and Dr William S. Thayer of Baltimore.

At the evening session of the Congress, Col Gorgas, the man who made the Canal Zone inhabitable, delivered his presidential address upon the "Sanitation at Panama as it Relates to Sanitation in the Tropics Generally," with lantern-slide illustrations He said that Panama, in 1904, when the United States began the construction of the canal, was universally looked upon as one of the most unhealthy spots in the tropical world; that this reputation was not undeserved, and was warranted by the facts in the case;

that the sanitary measures put into effect by the United States had enabled the construction of the canal to proceed for the past nine years with no greater loss from death and disease than would have occurred if the same work were being carried forward in most parts of the temperate zone; that this work had been accomplished at no very great expense; that, therefore, similar results could be obtained by communities or individuals in any other part of the tropics.

The following figures showed the death-rate among the employes of the Canal Zone: 1906, 39.51; 1907, 24.50; 1908, 8.68; 1909, 7.55; 1910, 7.50; 1911, 7.65; 1912, 6.37.

Col. Gorgas said that in comparing the health conditions at the Isthmus with those existing prior to 1904, he did not wish to take too much credit for ourselves. If we had undertaken the work when the French did, before the great discovery of Ronald Ross and his co-workers, when the world was ignorant of the method of the transmission of yellow fever and malaria, we would have fared as badly as they, and the gallantry of the French in facing the conditions they did could not be too highly praised. Every Frenchman, in going to the Isthmus, knew that the chances were three to one that he would not survive for six months, yet there was no hesitation: he bravely faced the conditions, did as good and conscientious service as it was possible for any man to do, and the records of the Isthmus show that about every three out of four left their bones near the work which they so faithfully and ably tried to complete.

A CASE OF ACUTE APPENDICITIS FOLLOWED BY ENTEROSTOMY FOR INTESTINAL OBSTRUCTION, WITH UNUSUAL SYMPTOMS.

Dr. John A. Hartwell, at a meeting of the N. Y. Surgical Society, held at the Presbyterian Hospital on March 26, 1913, presented a girl, five and a half years old, who was admitted to the hospital on October 15, 1912, with a well developed appendicular abscess of five days duration, this being her first attack. Her past history was uneventful, and she had always been a child of normal intelligence and mental activity.

The routine physical examination showed nothing abnormal excepting the usual physical signs of an abscess in the right lower abdominal cavity. There was no evidence of either tuberculosis or syphilis. An immediate operation was done and a small abscess with a chronically inflamed appendix was found. An appendectomy was done, ligating and cauterizing, but not inverting the base, and a small, double tube drain was inserted into the abscess cavity.

On the second day after the operation, signs of intestinal obstruction developed. This was thought to be a paralytic ileus, but it failed to respond to the usual remedies, and at the end of the third day an enterostomy was done by opening through the left pararectus line and inserting a small tube into the first coil of small gut presenting through a small stab wound surrounded by purse string suture. Following this operation, the child's condition was satisfactory, the intestinal drainage being free and the obstructive symptoms subsiding. Three days later methylene blue by mouth did not appear in the enterostomy wound until the ninth hour. The discharge, however, was that from the upper intestine, and there was considerable digestion of the surrounding skin. After the seventh day the fecal discharge from the enterostomy wound grew progressively less, and some feces passed per anum. Gradually, this increased, and the amount of discharge through the enterostomy wound became very small, so that the skin healed up and only one dry pad a day was required to keep the parts clean. The patient's general condition, however, was very unsatisfactory. She ate only fairly well and there was very rapid and severe emaciation until she appeared like a child in an advanced stage of starvation. She was very restless, irritable and mentally depressed. After two weeks she developed a bronchopneumonia which lasted about a fortnight. Her condition strongly suggested a pulmonary tuberculosis, but no bacilli could be found and the signs in the lungs gradually cleared up without improvement in her general condition. Her mentality was very unsatisfactory. At times she was excessively irritable; again, she would lie for hours in deep apathy. The condition suggested a possible tubercular meningitis, but complete examination of the eye grounds, the spinal fluid and the skin reaction all yielded negative results.

On November 25, seven weeks after the enterostomy and five weeks after the wound had nearly closed—though there was always some discharge through it—the patient developed a condition resembling catalepsy; she would not respond to questions and stared with dilated pupils, apparently taking no interest in her surroundings. This came on in the morning, soon after breakfast, and at ten minutes past one in the afternoon she began to have localized convulsions of the right arm and face. The clonic spasms seemed to be of the cortical type, as they were both flexor and extensor in character. The pupils were widely dilated, immobile, with a horizontal nystagmus with the quick component to the right. There was marked twitching of the facial muscles, with winking of the lids and slight frothing at the mouth. The convulsions followed closely one after the other, with some relief from chloroform inhalation in small amounts. A lumber puncture was done at 1.45 P.M., and 12 c.c. of clear fluid withdrawn under moderate pressure, but without relief of symptoms. Dr. M. Allen Starr saw the case at 2.10 P.M. and considered the condition due to a cerebral embolism of a septic nature resulting either from the appendicular abscess or the bronchopneumonia.

The convulsions lasted almost without interruption until five o'clock. They were confined to the right side, and could only be controlled with chloroform. They gradually ceased, and on the following morning the child was again in the condition noted earlier in her illness, with a marked increase in the mental apathy and irritability. No response could be obtained from her, and she seemed to have lost entirely her association with her surroundings. At times she failed to recognize her parents and appeared to be suffering from sensory blindness and deafness.

On November 30 another series of convulsions occurred, lasting one hour and being confined to the left side. From this time on her condition was pitiable. In no way could she be aroused to take any notice of her surroundings, and at times she would suffer from violent hallucinations and cry out in fright, covering her face with her hands, and pleading to be saved from imaginary injuries. She was emaciated and feeble. Her appetite was capricious, but food that was taken was apparently well digested and practically all fecal matter passed per anum, there being very little discharge from the enterostomy wound, though always some. Repeated examinations of the eye grounds, the spinal fluid, the blood, and complete physical examinations failed to show any evidence of organic lesion or of tuberculosis or syphilis.

On December 22, the condition having continued the same, she was seen by Dr. Theodore C. Janeway, who offered the suggestion that possibly the loss of calcium salts and other nutritive disturbances due to the high enterostomy might be causing the malnutrition and the cerebral unbalance. On the following day, despite the very small amount of output through the enterostomy and despite her wretched condition, the intestinal opening was closed. She bore the operation well, and immediately following it the administration of calcium lactate was begun. The operative wound healed kindly, with only superficial suppuration, and the patency of the intestinal canal seemed normal. Her convalescence from this time on was perfectly satisfactory, and in two weeks she was entirely normal and rapidly gaining weight. At the present time she appeared in every way like a robust child of six years, being quite up to the average both physically and mentally.

Unfortunately, Dr. Hartwell said, no studies were made in this case of the metabolism during her illness, but if the malnutrition and particularly the loss of calcium due to the high enterostomy did not bear a causal relation to the symptoms exhibited, her recovery from them on correcting these factors was a most curious coincidence, and the question was worthy of serious experimental study.

CLINICAL SOCIETY OF THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL

At a meeting of the Clinical Society of the New York Polyclinic Medical School and Hospital, April 7, 1913, Dr. Anthony Bassler presented a case of Persistent Brachial Neuritis and Obesity. Treated intestinally. Cure.

This woman, 57 years of age, was first seen October 2, 1912. Acute indigestion for a number of years, with a brachial neuritis. Last summer the painful neuritis extended into arm. Eating of fresh fruits increased the pain. This is the socalled gluteal type of intestinal disturbance. There was pain in the left side of the abdomen. Gain in weight. Physical examination revealed an endocarditis, with occasional dropped beats, otherwise negative. A normal diet was arranged according to the age and weight of the patient, and after three days urine showed a great increase in uric acid output and bacterial examination of the feces great numbers of bacillus aerogenous capsulatus. A diet of farinaceous foods, olive oil, etc., and no meat was ordered, vaseline administered to regulate the bowels, alkaline drinks and a large dose every fourth day of the Gram negative streptococcus intestinalis capsulatus was given to antagonize the aerogenous bacillus. The entire situation now cleared up. After a few weeks the acid output became normal, there was a loss in weight of forty pounds and the brachial neuritis disappeared.

Another case was of Arthritis Deformans. Treated intestinally. Cure. This young woman, a teacher 34 years old, has had a chronic joint involvement of the hands and feet for the last five years—a typical hypertrophic polyarthritis with an occasional acute exacerbation. The stiffness has persisted. During the first attack she was markedly constipated, a psoriasis developed and the patient lost fifteen pounds. Placed on a normal diet, the urine showed a slight trace of albumen and the toxic substances, uresin, indican, and a high oxidizing element. The stools showed abundant bacilli of putrefaction, and a Gram positive diplococci. She was placed on a diet with the smallest amount of calcium salts and bowels regulated by bran and agar. The stools then showed seven distinct strains of coli communis. Once every four days the patient was given a very large dose of coli bacilli, later placed upon a general diet. Now under treatment for two and a half years and no further attacks of polyarthritis have been experienced.

THE IDLE DARWIN

Coventry Patmore appears more than once in the book, "Memories of Victorian London," but we like best Mrs. Walford's story of Darwin, called out by Mr. Patmore's self accusation of idleness: "I am dreadfully idle, I am an idler born, but then I believe in a poet's idleness. Idleness is the growing time of his harvest, and the upcome of a year can be reaped in one fine day." Thereupon this story follows:

Mrs. Darwin told in my hearing a story of her husband, which bears on your remark about idleness. She said she was consulting her cook as to any means of tempting her master's appetite, which was a very poor one. "He does not seem to fancy ordinary food," she said. "Try to think of something."

The cook looked up and looked down, and twirled her apron. "If you'll excuse the liberty I'm taking, ma'am, I should say that master would be able to take his food better if he got something to do. Idle folks is never hungry."

"But your master is not an idle man," protested Mrs. Darwin, indignant at such a charge. "He is never idle. In my opinion, he works too hard."

"Excuse me, m'am," replied the cook, "but if I may make so bold as to say so, I can't agree to that. With my own eyes I see him in the garden yesterday sitting staring at a leaf for over two hours! Two whole hours! Well, that ain't work, anyhow."

"Oh, delightful—delightful!" Mr. Patmore lay back in his chair to enjoy the joke to the full. "Darwin staring for two mortal hours at a leaf—that marvelous brain of his working like mad all the while—and a slut who didn't know what a brain was turning up her nose at him for idleness! That two hours' growing time produced—what did it not produce? A chapter perhaps that the world will not willingly let die."

THERAPEUTIC PROGRESS

Adamon.—Gudden, *Medizinische Klinik,* January 26, 1913, states that adamon is a substitute for valerian in solid form; that it is a harmless and effective sedative, tasteless and without harmful effect on the gastrointestinal tract.

The Treatment of Constipation Complicated with Hemorrhoids.—In the *Paris Medical* for August 10, 1912, it is advised that a mixture of washed sulphur, two parts, and honey, one part, be prescribed, one teaspoonful every morning for a few consecutive days, these intermitted, to be resumed later as required.

Paraffin Adulteration of Foods.—It has been proven by chemical examination that numerous articles of food contain paraffin as an adulterant. Particularly is this so in the cheaper grades of candies and confections generally. This is in violation of the Food Law, and manufacturers should and will be prosecuted if the attention of the proper authorities be called to such cases of adulteration.

Adrenalin in Asthma.—McCord, *Medical Record,* March 8, 1913, discusses the action of adrenalin in the treatment of asthma. He believes it reasonable to conclude that the agent increases the lumina of the contracted bronchioles, which dilatation is probably the cause of the benefit derived. The dilatation results whether the remedy is used subcutaneously, intravenously or endobronchially. The action is transient, but very effective in relieving an acute attack. The subcutaneous method is the most transient. The administration is easy and followed by no bad secondary effects.

Sugar in the Treatment of Wounds.—Magnus, in the *Munchener Medizinische Wochenschrift* for February 25, 1913, reports favorable results. It is disinfecting and antiputrefactive, causes the liberation of fibrin, stimulates the secretion by drastic osmotic procedures like a serum flush of the wound from within outward; all of which furnish favorable conditions for healing in rapid cleansing, deodorizing, formation of healthy granulation tissue and rapid growth of new skin. He considers the sugar treatment a sterile medication.

Poultices as Sedatives.—One reason why the old fashioned poultices fell into undeserved disrepute, says Solomon Solis-Cohen, *Journal of American Medical Association,* was the fact that poorly made poultices necessitated such frequent change that the evil wrought by the disturbance outweighed the good done by the poultice. Well made poultices, retaining their heat from four to six hours, however, give so much relief from pain—thus acting as sedatives to the nervous system—that they may be classed among agents promoting rest.

Antitetanic Action of Calcium Salts.—Yagi, *Archives Internationales de Pharmacodynamie et de Thérapie,* Vol. XXII, Nos. 1 and 2, found that when calcium chloride was injected into frogs, the administration two or three hours later of strychnine in more than double the dose ordinarily required to induce convulsions failed to produce true tetanus. Similar results were obtained upon substituting caffeine or quanidin for the strychnine, but not when picrotoxin or phenol was used. The effects are ascribed to a diminution of the irritability of the muscles themselves while under the influence of the calcium chloride.

Hydrastinin Synthetic.—Offergeld, *Berliner Klinische Wochenschrift*, January 13, 1913, reports the satisfactory use of synthetic hydrastinin in uncomplicated primary and secondary uterine hemorrhage, and states further that its action is particularly good when it is used for some time before hemorrhage begins, as a prophylactic. Hemorrhage during pregnancy should not be treated with this drug because of the uterine contractions it produces. He declares that hydrastinin is less poisonous, more effective, more palatable and cheaper than hydrastis.

Phosphorus Treatment of Epilepsy.—Leubuscher, *Deutsche Med. Wochenschrift*, March 13, 1913; Abst, *J. A. M. A.*, April 19, 1913, thinks that it is now established beyond question that autointoxication, originating in the intestines, is the main factor in bringing on epileptic seizure. After this factor has received due attention, he advocates the giving of phosphorus, as this has such a marked effect in tetany. He has been giving it systematically since early in 1911, in 10,000 parts of oil. Nine very severe cases of old epilepsy in which he applied this treatment are reported. Seizures were reduced by 30 to 40 per cent. in three cases, by 65 per cent. in two cases. In three the improvement was less striking, in one the number of attacks increased from twelve to fourteen seizures a month. Patients were between seventeen and thirty years of age, the epilepsy dating from childhood in most. The greatest benefit occurred in the severer cases; in one case seizures being lessened in numbers from 119 to 73. The phosphorus was given for fifteen months in six cases.

Emetine Treatment of Amebic Disease.—Randolph Lyons, *Journal American Medical Association*, April 19, 1913, relates the advantages of emetine treatment of amebic disease. It has been shown that ipecacuanha without emetine has but little effect on ameba *in vitro* (as well as clinically), while emetine has a most powerful amebicidal action. Granting this, we assume emetine to be the active principle of ipecac so far as amebas are concerned, and theoretically should be used in preference to the whole drug in the same manner as we employ quinine for the treatment of malaria in preference to cinchona. According to Rogers, a third of a grain of emetine is equivalent to 30 grains of ipecac. The hydrochlorid, to which salt his experience has been limited, is, he states, practically nonirritating when used subcutaneously and in moderate doses causes no nausea, vomiting or depression. Rogers's largest dose was 3 grains in one day. Allen injected 4 grains at one dose and produced nausea for several hours, the patient vomiting once. Rogers has given the hydrochlorid intravenously, 1 grain in 5 c.c. of normal saline solution, without any depressing effect on the pulse.

MISCELLANY

APPLICATION OF OSTEOPATHS FOR AMENDMENT OF SECTION 163A, SANITARY CODE

A hearing was held before the Board of Health at its meeting on Tuesday, January 21, 1913, upon the application of Guy Wendell Burns, Chairman, Board of Directors, Osteopathic Society of The City of New York, on behalf of the practising osteopaths of the city, for the amendment of the Sanitary Code, whereby certificates of death signed by osteopaths might be accepted and burial or transit permits granted thereon. The New York Osteopathic Society, the New York County Medical Society, the Kings County Medical Society, and the Queens-Nassau County Medical Society were represented. Arguments pro and con were heard from 3:30 until 6 P.M. Commissioner Lederle announced that a decision would be given in two weeks.

Previous to the passage of chapter 344 of the Laws of 1907, the practice of osteopathy was not recognized in this State. By the passage of this law, it was so recognized, and subsequent to the refusal of the Department of Health to register signatures of osteopaths with it, a writ of mandamus was issued by Justice Aspinall, compelling the Department of Health to register their signatures in accordance with the provisions of that act, and that the word "osteopath" be included in such registration. On March 31, 1909, the Board of Health amended the Sanitary Code by the addition of the following subsection, known as section 163a:

"Sec. 163a. No transit permit shall be granted for the removal or burial of the remains of any person who may have died in the City of New York, unless a certificate of death, made out upon a blank form furnished by this department, and signed by a physician upon whom has been conferred the degree of Doctor of Medicine, be filed in the Bureau of Records of this department."

A representative osteopath sought to enjoin the enforcement of this section of the Sanitary Code. The Corporation Counsel of the city entered a demurrer, which was sustained. Hon. Justice Putnam handed down a decision, from which the following may be quoted:

"While the State has wisely allowed the practice of osteopathy, it does not follow that it thereby holds out one without any practice in surgery or experience in prescribing drugs as fully qualified to certify the cause of death. Indeed, it is not certain that a board of health would be compelled to take the certificate of death of all licensed physicians in the event of an epidemic or the spread of some new and mysterious disease. Granted that the theoretical education of the osteopath is of a standard equal to that of a doctor of medicine, after he enters on his profession his practice is restricted, so that it does not appear that he can make the tests by examination of blood and tissues by which alone many diseases can be certainly detected. The Sanitary Code is discriminatory, but the discrimination is not personal and arbitrary. It is based on a limitation which the osteopath may be said to make for himself, and deprives him of no rights which he ought to exercise, consistent with the public safety."

INFANT FEEDING IN ELIZABETHAN TIMES

At a meeting on March 24th of the Royal Society of Medicine, *British Medical Journal*, April 15, 1911, D. Forsyth read a paper on the history of "Infant Feeding in Elizabethan Times and Onwards." Tracing the changes in breast feeding through nearly 400 years, the speaker showed that in each century the period of suckling had steadily declined. Beginning in the fifteenth century at two to three years—a duration which is still customary among, for example, the Japanese and the Greenlanders—it had become eighteen months to two years under the Stuarts, one year in the Georgian days, and now lasted only about eight months. Step by step the mother had been supplanted, first by the wet nurse and later by the sucking bottle. The rise and fall of the wet nurse, who reached her palmiest days in the eighteenth century, were described, together with the social evils that she brought with her. Artificial feeding was quite unknown until the time of the Hanoverian succession, and even then the choice of food was limited to bread and water pap. A little later cow's milk came into use, and the speaker showed that the profound suspicion of all artificial methods was to be accounted for by the sanitary condition of the people in Tudor and Stuart times. Cow's milk, however, for more than a century after its introduction, was held in general disrepute, for the reason, no doubt, that a widespread prejudice against boiled milk existed among all classes. In the nineteenth century three notable developments were witnessed, first, the invention of the sucking bottle; secondly, the manufacture of proprietary foods; and thirdly, the final acceptance after long struggles of artificial methods. The original feeding bottle was a cow's horn, to the tapering end of which were tied a couple of pieces of leather, sewn together like the finger of a glove, and the babe sucked its milk between the stitches. The gradual stages by which this horn developed into the modern hygienic feeding bottle were traced. Finally, the more recent developments in the methods of feeding during the last fifty years were described. In conclusion, the speaker, recalling the striking decline in the duration of breast feeding and the steady progress of artificial methods, glanced at the future of infant feeding. Did it lie with the method of nature or with the methods devised by man's ingenuity? His experience had been that medical men, more often than was sometimes thought, supported the bottle against the breast, and he thought that in doing this they were showing no more than a practical appreciation of the modern trend of infant feeding.

CREATIVE ART AND SEX EMOTION

Chaucer noticed that in the spring "smale foules maken melodie . . . so priketh hem nature in her corages." The male bird sings his sweetest song and puts on his brightest plumage at the time of year when he goes acourting. He does all this to attract the female, though perhaps he is not conscious of it and thinks that his song is an inevitable expression of the *joie de vivre* that courses through his veins, but seen objectively, it is merely one of nature's ways of keeping up her idiosyncrasy for preserving the race at all costs. Anyway, the bird sings his song—a creative act of a high artistic order—during the annual period of sexual activity. This period alternates with a longer one during which male and female live together in a practically asexual state and then the sex song is never heard. In the human race sex feeling exists persistently through the whole period of sexual life, and, like the birds, the human male expresses himself in creating color and music. A superior creative instinct is as characteristic of the human male being as is the song of the male bird, but as men and women are in the plane of pure intellect often absolutely equal, so we get occasionally a tendency to desexualization, male showing female tendencies and *vice versa,* and these cases supply us with exceptions to the rule. Still, on the whole, in the spheres of pure art, the male is creative, and the female appreciates the creation. Even where we find the female assuming the function of originator the work has usually a more superficial appeal than that of the male; it may show qualities of grace, dexterity, and a light beauty, but seldom or never does it possess the sense of power and the deep appeal of the best male art. Of course, this is a difference of kind, not of degree. Women have an intenser appreciation of men's art than any man. And the sum total of the whole matter is that nature wants the race to continue—"so careful of the type she seems, so careless of the single life." All around us and all the time nature fights for the eternal preservation of her precious germplasm.—*The Medical Press,* December 11, 1912.

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ORIGINAL ARTICLES

HILUS (AND PERIHILUS) TUBERCULOSIS AND ITS SEQUELÆ.*

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The region of the hilus or root of the lung has long been recognized as a common site of tuberculous deposit, more particularly in connection with the tracheobronchial lymphatic glands, but the immense importance of the hilus as an early and primary focus of disease is only just beginning to be appreciated. The frequency with which the lymphatic glands situated close to the bifurcation of the trachea become affected may be readily understood when we recall the fact that these glands are the natural filters to which pass foreign particles, including tubercle bacilli, originally deposited on the bronchial mucous membrane in the act of inhalation or in the alveolar tissue of the lungs, whether originally conveyed there by aspiration or blood infection.

PULMONARY AND EXTRA-PULMONARY LYMPHATIC SYSTEM

In order to make it clear how the virus of tuberculosis is carried to the bronchial glands and how the disease itself extends and is disseminated, one must have a right conception of the intrapulmonary and extrapulmonary lymphatic drainage system. It has been well said that the whole lung is pervaded in every crevice of its structure by lymphatic tissue. In the alveoli there are branched protoplasmic cells communicating with fine tubes and interstitial spaces lined by endothelial cells, while in the perilobular connective tissue there is a fine network of tiny lymph vessels into which the alveolar lymph passes. In the bronchial mucosa there is a network of lymphatics, the lymph capillaries being situated underneath the vascular capillaries which lie immediately beneath the bronchial epithelium. There is also a network of fine lymp channels in the bronchial submucosa. Teichmann has shown that the lymphatics of the bronchial mucosa run parallel to the long axis of the bronchi in contradistinction to those of the submucosa which tend to run transversely on the cartilaginous rings. From the network of bronchial lymphatics lymph vessels pass to the tissue surrounding the pulmonary blood vessels accompanying the bronchi. At the point where the bronchi branch we have generally three lymphatic vessels, one of which passes to the artery and the other two to the veins, while the smaller arteries and veins are only accompanied by a single lymph-vessel situated between the blood vessel and the bronchus. We have thus a series of perivascular and peribronchial lymphatic channels into which drain the bronchial and perilobular lymphatics, and which end in the numerous tracheobronchial glands occupying the space below the bifurcation of the trachea and extending on to the pericardium, though single glands are found surrounding the main bronchi and also lying on the pulmonary artery.

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*A Lecture delivered at the Medical Graduates' College and Polyclinic on October 8, 1912.

Toward the surface of the lung the perilobular lymphatics are believed to communicate with the lymphatics of the visceral pleura. These pleural lymphatics form a network of vessels which gradually join up close to the root of the lung into four or five large lymph trunks which terminate in the bronchial glands at the hilus, where there is free anastomosis with the lung lymphatics. The existence of stomata on the surface of the visceral pleura providing direct communication between the pleural sac and the lymphatics of the lung and pleura is doubtful in the light of recent investigations.

It must be remembered also that there is *direct communication between the lymphatic system of the thorax and that of the neck and abdomen.*

As regards the neck, Grober's remarkable experiments demonstrated a direct route to the pleura and lungs *via* the cervical lymphatic glands, and the discovery of this route led him to believe that primary infection by way of the tonsils might be the explanation of the frequency with which the apex of the lung was found to be the seat of tuberculous disease. It is certainly fairly common to find that enlargement of the supraclavicular and axillary glands precedes pulmonary tuberculosis. In the case of tonsillar infection the submaxillary glands are the first to be involved, the disease tending to gradually pass down to the axillary and supraclavicular glands, and in such cases the bronchial glands are not infrequently found enlarged and caseous. The importance of this direct relationship between the cervical and mediastinal lymphatic systems may be of great importance both in regard to the incidence and spread of pulmonary tuberculosis.

As regards the abdomen, Poirier* proved the existence of free communication between the lymphatics of the pleural and peritoneal surfaces of the diaphragm. As far back as 1903, Professor Behring, of Berlin, maintained that pulmonary tuberculosis was generally the result of infection by the intestinal route, which contention received considerable support some years later from Calmette and Guerin's notable experiments with intraesophageal injections of bacillary emulsions in guinea pigs.

These experiments led these observers to believe that it was the rule for the virus to be carried to the lungs by way of the abdominal lymphatic system instead of the lungs being affected directly by inhalation as had previously been supposed. I understand, however, that both Behring and Calmette have recently considerably modified their views in regard to the respective frequency of infection by inhalation and ingestion, the former being now generally regarded as the more important channel of infection.

FREQUENCY OF HILUS TUBERCULOSIS

The importance of hilus tuberculosis is shown by the fact that the bronchial lymph glands are often the first tissues attacked by tuberculosis in early life, and may be the only foci of disease in the whole body. So extraordinarily common are tuberculous foci in the bronchial glands and surrounding lung tissue that the majority of all persons dying of accident or suicide in Paris, and whose bodies are exhibited at the Morgue, present evidence of old standing or recent disease in these parts. Naegeli—the well known pathologist—found evidence of tuberculosis in no less than 97 per cent. of all adult post-mortem examinations, and in a large proportion of these the disease took the form of calcareous or caseous deposits in the bronchial glands situated either at the roots of the lungs or along the large air-tubes. The remarkable investigations of Hamburger and Monti in Vienna indicated that over 50 per cent. of schoolchildren under six years of age and 94 per cent. of schoolchildren under fourteen years of age had already become infected with tuberculosis, although the natural resistance of the individual was sufficient to prevent 80 per cent. from ever exhibiting symptomatic manifestations of disease.

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*"Traité d'Anatomie humaine," Paris, 1902

It would probably be correct to state that in the larger number of these children the disease affected the lymphatic glands at the roots of the lungs and elsewhere.

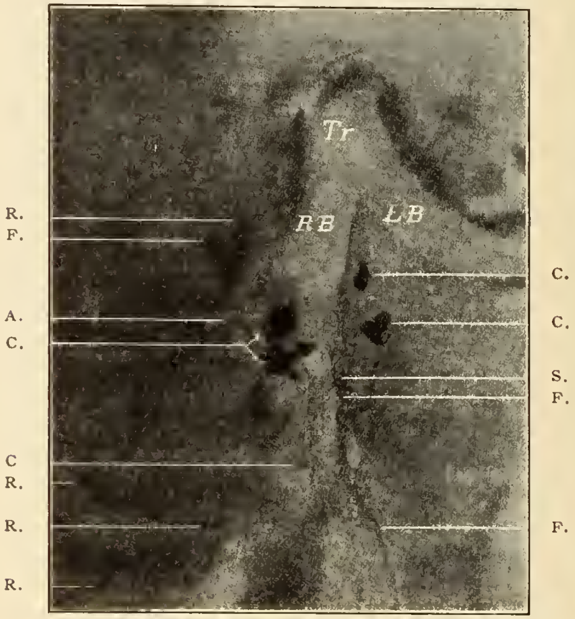

FIG. 1

Skiagram of healthy lung from post-mortem room. C. Calcareous patches in bronchial glands. A. Air tubes surrounded by fibrous tissue. F. Thick fibrous sheath round air tube. R. Radiating shadows due to fibrous tissue; round smaller air tubes. Tr. Trachea. R.B. Right bronchus. L.B. Left bronchus. (By kind permission of Dr. Jordan.)

It is, indeed, at the period of infancy and early childhood that the tuberculosis seed is commonly sown in the organism, although the disease may remain latent for a prolonged period and only manifest itself when the system is lowered by some acute illness. Professor Nietner, of Berlin, who has specially devoted himself to the study of tuberculosis in childhood, is of opinion that tuberculous deposit often commences in the middle of the second year of life and continues in an increasing ratio every year up to and beyond the age of puberty. Similar observations in regard to the prevalence of tuberculosis in children have also been made by Dr. Phillip, of Edinburgh, who found actual stigmata of pulmonary tuberculosis in no less than one-third of the children attending the schools of that city.

The work of Dr. Anton Ghon,* of Prague, on pulmonary tuberculosis in children is one of the most important of recent contributions in connection with glandular and hilus tuberculosis, while in England the radiographic investigations of my colleague, Dr. Alfred Jordan, published under the title "Peribronchial Phthisis," have attracted widespread attention. Dr. Jordan states that the great majority of a series of "healthy" lungs obtained by him from the postmortem room and examined by the X-rays showed calcareous deposits in the lymphatic glands, either at the roots or along the course of some of the larger air tubes (Fig. 1).†

Fortunately there is a marked tendency to spontaneous cure in the case of glandular tuberculosis, as is evidenced by the frequency with which such calcified bronchial glands are met with postmortem in cases where there had been no suspicion during life of any tuberculous disease. At the same time it must not be forgotten that the disease may lie latent in the glands for long periods, and may be followed many years later by important and serious consequences.

As regards the incidence of the disease, evidence is accumulating that catarrh of the bronchial mucous membrane is one of the most important predisposing causal factors in connection with hilus tuberculosis. Sir William Osler in this way explains the frequent occurrence of tuberculous adenitis of the bronchial glands as a sequela of whooping cough and measles. Increased vulnerability of the tissues, according to the late Professor Virchow, is the important factor in producing the disease, and such vulnerability would naturally occur as the result of injury or breach of continuity in connection with the bronchial mucosa.

It is also more than probable that when bronchitis has persisted for some time and the ciliated epithelium has thereby become damaged and its functions impaired, bacilli may then find their way by aspiration into the remote bronchial ramifications and may be carried into the alveoli of the lung. Thence they pass between the cells lining the air vesicles and so into the lymph channels and connective tissue spaces of the alveolar walls.

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*"Der Primare Lungenherd bei der Tuberculose der Kinder," Prague, 1912.

†K. Preisich, as the result of his investigations on tuberculosis in infancy and childhood, makes the following statement which indicates the importance of peribronchial and hilus tuberculosis in children:—

"From the first to the seventh year of life the number of cases of tuberculosis of the lymphatic glands increases year by year. The type is benign probably on account of the great power of resistance possessed by children. . . . After the seventh year tuberculosis of the lungs as a disease, *per se*, attains the greatest importance. . . .

"In children over 8 years of age chronic tuberculosis of the lungs tending to recovery is no longer rare. *Most frequently there are found peribronchially disseminated lobular or confluent foci* (probably due to inhalation or infection by way of the circulation). *There is also caseous infiltration starting from the hilus and spreading over an entire lobe* (probably *starting from the hilus glands and spreading back along the lymphatics*)."

From the frequency with which enlarged bronchial glands and tuberculous thickening in the adjacent pulmonary tissues are found in persons exposed to dust inhalation, it is conceivable that the tubercle bacilli may in many cases reach the bronchial glands by being actually attached to the organic particles, which would thus act as the direct carriers of the infective virus. At the same time the association of silicosis with tuberculosis may also be explained by the theory that inorganic particles—particularly when of a sharp, angular character—may cause sufficient irritation of the glandular and pulmonary tissues to render the resulting inflammatory area a suitable nidus for the growth and development of the bacillus of tuberculosis.

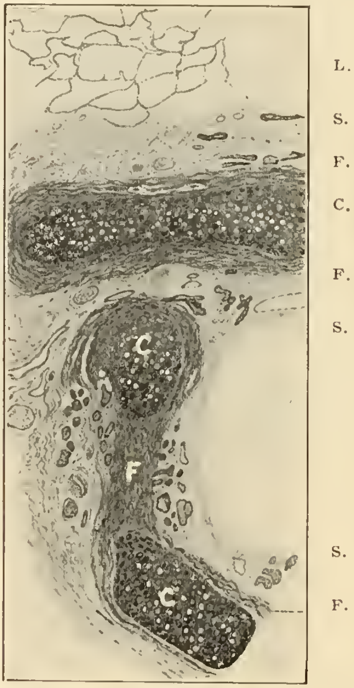

FIG. 2

Microscopical section through same lung shown in Fig. 1 through point S, showing great increase of fibrous tissue around bronchial cartilage (cartilage being transparent to X-rays). L. Healthy lung. S. Stroma. C. Bronchial cartilage. F. Fibrous tissue sheath (tuberculous giant celled systems sometimes present). (By kind permission of Dr. Jordan.)

THE PRIMARY SITE OF CHRONIC PULMONARY TUBERCULOSIS; APEX *v.* HILUS

Hitherto the apex has always been regarded as the most frequent primary focus of pulmonary tuberculosis. In 1880 Sir James Kingston Fowler* stated that a spot situated from one to one and a half inches below the actual apex was the primary seat of disease in the large majority of cases. This observer also drew attention to the fact that tuberculous disease in its progress through the lungs followed a distinct "line of march" particularly in the chronic and fibroid varieties, the disease spreading in each lobe from above downwards, hardly ever from below upwards. From the primary apical focus he found that the lesion tended to extend in the first instance backwards and then downwards along the anterior portion of the upper lobe in the form of scattered nodules situated about three-quarters of an inch within its margin. The apex of the lower lobe became affected at a comparatively early period, the disease tending to spread backwards along the posterior surface of the lung and laterally along the line of the interlobular septum. When extension took place along the base it was usually by means of scattered nodules of infiltration, often arranged in a racemose manner. Soon after the apex of the lower lobe was affected there was an involvement of the apex of the upper lobe of the opposite lung, to be followed later by infiltration of the apex of the lower lobe of that lung.

It is important, however, to observe that Kingston Fowler mentions occasional variations in the position of the primary foci and also in the "line of march," and makes special note of so called cross lesions where the extension seems to take place from the apex of the upper lobe of one lung to the apex of the lower lobe of the other. He also makes special reference to the comparative freedom of the bases of the lungs from tuberculous deposit, stating that primary basic disease is exceedingly rare, there being generally evidence of older lesions of the apices. Fowler attributes the frequency of apical disease to the lesser functional activity of this portion of the lung, which is imperfectly expanded in ordinary quiet breathing, such impairment of function being associated with defective resisting power. It must be admitted, however, that Fowler makes no attempt whatever to explain the rationale of the "line of march" which he so carefully describes. It would seem that a more or less constant "line of march" must have some rational explanation.

On the other hand, Dr. Alfred Jordan† states categorically that chronic pulmonary tuberculosis does not generally commence at the apex, but begins at the roots and extends along the branchings of the large bronchial tubes. I am indebted to the courtesy of Dr. Jordan for permission to reproduce Figs. 1 and 2, already published in the PRACTITIONER, representing calcified glands and peribronchial fibrosis.

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*"Localisation of Lesions in Phthisis," 1880.

†*The Practitioner*, February, 1912; *Brit. Med. Journ.*, August, 1912

As regard the mode of infection, and the manner in which the virus gets to the peribronchial tissue in the first place, Dr. Jordan does not commit himself to any definite opinion, nor has he given any explanation as to why the peribronchial pneumonic process should commence around the large bronchi close to the root of the lung instead of more or less promiscuously around the smaller and more peripheral bronchi.

Dr. Jordan inclines to the view that the primary tuberculous deposit does not take place in the bronchial glands, but in the peribronchial tissues in the form of bronchopneumonic foci, and that the glandular enlargement is secondary.

In a number of cases the infection seems to spread directly to the lungs from the caseous bronchial glands, often apparently by direct contact. Indeed, as Sir William Osler has pointed out, and his statement is confirmed by my own observations, it is sometimes difficult to determine in a section through the affected lung where the caseous bronchial glands terminate and where the pulmonary tissue begins. In the greater number of cases, however, the extension is probably by way of the lymphatic network already described as surrounding the pulmonary vessels and bronchi. It is possible that the extension takes place in a great measure along the perivascular lymphatics surrounding the pulmonary vessels, but owing to the close proximity of the pulmonary vessels and bronchi the task of precise discrimination between the perivascular and peribronchial lymphatics is naturally difficult. It may be that while the larger number of bacilli entering by way of the bronchial mucosa are passed on to the bronchial glands, into which the bronchial, perivascular and peribronchial lymphatics drain, a certain number of bacilli filter through the mucous, submucous and peribronchial lymphatics, and may give rise respectively to tubercles on the surface of the bronchial mucosa, to caseous deposits in the bronchial submucosa, and to bronchopneumonic areas in the pulmonary tissue surrounding the bronchi. Dr. Jordan favors the view that the tuberculous process generally spreads in the form of bronchopneumonic extension in the peribronchial pulmonary tissues, which in favorable cases may cicatrize into fibrous bands, appearing as dark radiating shadows on X-ray examination of the affected lungs.

Dr. Jordan states that in 40 per cent. of cases of phthisis the disease commences as a definite peribronchial infiltration and spreads from the hilus in all directions, but most rapidly along the ascending and descending branches of the main bronchus, and that sooner or later the disease reaches the apex by way of the ascending bronchiole. When the apex is reached, the disease, he says, may there progress rapidly, so that the apex appears clinically to be the chief seat of invasion, the primary disease at the root being so deeply placed as to escape detection from without. He explains purely apical cases on the hypothesis that the tuberculous infection has traveled up from the hilus along the main ascending bronchiole to the apex in an early stage, and progresses there, while the track of infection from the root to the apex has healed up, leaving only an excess of fibrous tissue along the ascending bronchiole. Dr. Jordan bases his conclusions mainly on his interpretations of radiographic shadows in the lungs of living subjects, and of similar shadows obtained by the X-ray examinations of lungs taken from the postmortem room. Now, ingenious and striking as these theories and conclusions are, it is doubtful if Dr. Jordan has so far produced sufficient evidence to warrant definite dogmatic generalizations.

In any case we have here two divergent views—the one ably expounded by Kingston Fowler as the outcome of unrivalled pathological and clinical experience to the effect that pulmonary tuberculosis is primarily an apical disease with gradual extension downwards along a definite "line of march," while the newer view is advanced by an expert radiographer with much less pathological and clinical knowledge, who nevertheless has the courage of his convictions, and boldly states his belief that apical tuberculosis is but an extension of "peribronchial phthisis," which is really the primary manifestation of chronic pulmonary tuberculosis. Is it possible that two views apparently so divergent can be reconciled?

Kingston Fowler* himself, in discussing the pathology of chronic fibroid phthisis, admits that the extension of the disease is more toward the peribronchial tissue than toward the alveoli, and states that the bronchi may be thickened from small celled infiltration, while actual tubercles may be present both in the walls of the bronchi and in the peribronchial tissue, in which cases groups of granulations having a racemose arrangement are usually present (see Fig. 3). Fowler also found that the lining membrane of bronchi which pass through such tuberculous bronchopneumonic areas are often intensely injected and swollen, and may even have undergone extensive tuberculous ulceration. He further found that tuberculous infiltration of the peribronchial sheath may lead to marked thickening of the tube and narrowing of its lumen. In some of these cases this fibrous constriction and narrowing of the bronchus may lead to bronchiectatic dilatation beyond the site of constriction.

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*"Diseases of the Lungs," Fowler and Godlee

As far as Dr. Jordan's views are concerned, he does not seem to have fully appreciated, and, indeed, has practically ignored, the frequent occurrence from time to time of autogenous blood infection, aspiration bronchopneumonia and other accidental contingencies, not to mention the possibility of actual primary alveolar deposit as the result of inhalation. He has disregarded to a great extent the consideration of what the Germans describe as "open" tuberculosis. "Open" pulmonary tuberculosis includes the type in which fragments of mucopus loaded with autogenous bacilli may pass directly into the lumen of the bronchi, thus forming what might be described as tuberculous "bronchial emboli," capable of being aspirated into the terminal bronchioles and alveoli as well as of being expectorated

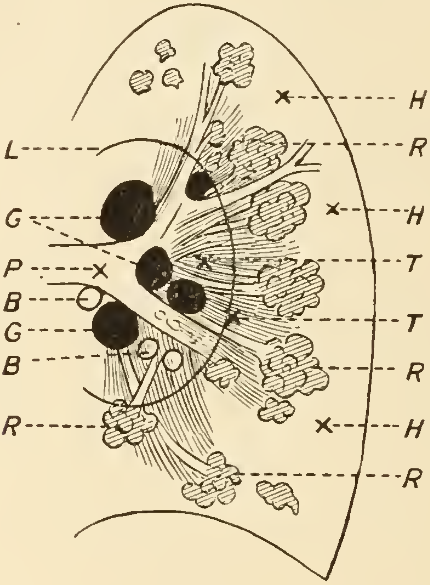

FIG. 3

Chronic fibroid phthisis commencing as hilus tuberculosis. This drawing was made from a specimen in Brompton Hospital Museum (Catalogue No. 116) and represents a complete section through right lung. Is an excellent example of chronic fibro caseous phthisis, the disease having evidently commenced at the hilus and extended outward into the surrounding tissue in a wonderfully symmetrical fashion. P. Pulmonary vessel cut longitudinally. B. Air tubes cut across. G. Caseous bronchial glands at hilus. T. Tuberculous fibrous thickening and infiltration extending outward from hilus. R. Racemose tubercle in perihilus area. L. Imaginary line circumscribing hilus of lung. H. Peripheral zone of healthy lung tissue ¾ in. wide. (Drawing by author.)

in the sputum. Dr. Jordan's views regarding the university of peribronchial extension might be quite sound if he were dealing only with a "closed" disease with no bacilli in the bronchial contents and spreading along the lymphatic lines of least resistance, but there is in actual fact a constant liability to accidental contingencies. On the one hand we may have the erosion of a blood vessel by a tuberculous gland or other diseased focus, so that the virus is carried by the blood stream and deposited at the less resistant apices or elsewhere, while on the other hand we have the above mentioned tuberculous "bronchial emboli" which may be carried by inspiratory efforts to the apices and peripheral portions of the lungs possibly at a comparatively early stage of the disease, just as occasionally happens in the case of the classical "phthisis ab hemoptoe," when new deposits occur after a pulmonary hemorrhage due to the aspiration of the infected blood into distant portions of the pulmonary tissue.

The presence of autogenous bacilli at an early stage in the bronchial secretions may indicate one of several processes. There may be small miliary tubercles in the bronchial mucous membrane, which, on breaking down, form small tuberculous erosions discharging tubercle bacilli into the bronchi; there may also be present large caseous nodules in the submucous tissue which may burst into the lumen of the tube; and more important still in the course of the tuberculous bronchopneumonic extension above referred to, it is quite common to find in addition to and *pari passu* with the cicatrizing fibrous process already described, that some of the bronchopneumónic patches may caseate, not a few breaking down into minute cavities communicating more or less freely with the adjacent bronchioles, into which the tuberculous contents of the alveoli escape.

In any or all of these contingencies which are so common in the later stages of the disease to as practically constitute an essential part of the pulmonary tuberculous process, we have all the conditions necessary to bring about an aspiration bronchopneumonia. Fragments of mucopus loaded with bacilli may be sucked in with inspiration and carried to the apices and other portions of the lungs, where they may lodge and set up tuberculous inflammatory mischief. The ciliated epithelium is no longer able to expel such fragments, and the phagocytic action of the lining cells of the bronchi, bronchioles and alveoli, though generally quite effective in the case of the few individual air borne bacilli carried from without by inhalation, may be no longer capable of dealing with such concentrated masses of bacilli, accompanied as they are by degenerated epithelial *débris*, which may itself act as an irritant in addition to furnishing pabulum for the accompanying bacilli, until they succeed in obtaining a fresh nidus in the pulmonary tissue suitable for their growth and development. Areas of tuberculous bronchopneumonia are thus formed as independent foci, and these are specially apt to occur at the apices of the lobes, where there is least functional activity and consequently least power of resistance.

The frequency of the pulmonary apex as the seat of tuberculous disease may be explained on the supposition that its normal inactive condition in the course of normal respiration induces a certain degree of local anemia (ischemia). The result is that we have the very conditions most likely to favor the deposit and development of the tubercle bacillus, such deposit not being surrounded by well filled blood capillaries which are uniformly present in the actively functioning areas of the lung at the base and elsewhere. At the apex the deposit is inadequately bathed by blood serum containing protective and antibactericidal properties; there is, in short, as Sir Almroth Wright would express it, "defective lymph lavage," thus converting the apical focus into a "nonbacteriotropic nidus."

The advocates of the view that the hilus is generally the primary focus of pulmonary disease find it difficult to determine whether apical infiltration occurs independently of *Hilus tuberculosis* as patients seldom die at the early stage, unless from some extraneous cause. In the case of patients who die with advanced disease of one lung, and are found postmortem to have early apical deposit in the opposite lung, there are always hilus deposits, and therefore such cases throw but little light on the problem.

The principal evidence in support of the hilus as a primary focus of disease is obtained from radiographic examinations of early cases, and this evidence is by no means absolutely conclusive. The difficulty arises from the fact that in the lungs of nearly all presumably healthy persons we find opaque areas at the roots situated just outside the cardiac shadow, while linear radiating shadows—the so called "hilus shadows"—pass out into the lung substance for varying distances. There is at present considerable difference of opinion in regard to the significance of these hilus shadows. Some of the German radiographers, indeed, regard these radiating shadows as representing the normal pulmonary vessels filled with blood, while other radiographers are equally positive that they are definitely pathological. Thus Dr. Jordan states that they are due, in the majority of cases, to the previous entry of tubercle bacilli and to the fibrosis resulting from the reaction of the organism to render these bacilli inert.

Hilus shadows and blotches and radiating striations of varying density confined to the roots are practically universal, and invariably present to a greater or less extent in all adults. Accordingly experienced radiographers, such as Dr. Ironside Bruce and Dr. Jordan, are of opinion that *per se* they have but little significance in adults except as being indicative of old inflammatory deposit—tuberculous or otherwise.

The fact that Naegeli and other pathologists found evidence of tuberculous deposit almost constantly at the roots of all lungs examined by them postmortem certainly lends support to such a theory, though it does not actually prove the correctness of the interpretation of the X-ray hilus shadows. In any case, as long as the shadows are confined to the root area, it is at present extremely difficult to differentiate between old standing probably cured disease contracted in childhood and recent tuberculous infiltration. In the majority of adult cases exhibiting shadows strictly confined to the roots it is safe to conclude that if they are pathological they indicate merely old standing cured disease contracted in childhood and not recent tuberculous infiltration.

Another difficulty arises from the fact that in long standing bronchitis, bronchiectasis and silicosis one finds similar, though possibly coarser, radiating shadows, which may be the result of cicatrized inflammatory areas due to nontuberculous irritation (Fig. 10). Here, again, however, it is difficult to exclude tuberculous infiltration as a secondary process, which is undoubtedly a common accompaniment in goldminers' and tin miners' phthisis and other forms of pneumoconiosis. If in doubt it is often well, in the absence of tubercle bacilli in the sputum, to have recourse to the subcutaneous tuberculin test. Well marked hilus shadows, particularly if they extend into the lung substance well outside the root area in conjunction with a positive tuberculin test, I believe to be extremely significant of tuberculous disease.

There are, however, other important X-ray appearances which are of great confirmatory value. It has long been known that restricted movement of the diaphragm, as seen through the fluorescent screen, is frequently present in early pulmonary tuberculosis, such restricted movement occurring before any definite shadow at the apex or other portion of the lung tissue proper becomes evident. May it not be that this restriction of movement may, in reality, be due to hilus disease (glandular, or pulmonary, or both) restricting the air entry?

A vertically placed tube like heart is another confirmatory sign, and is supposed to be characteristic of tuberculous soil and to be one of the dystrophies which predisposes to tuberculosis. When the heart occupies its normal oblique position the root opacities are not of such importance.

Any X-ray evidence of tuberculous deposit outside the root area is of course highly significant. One might specially mention the imperfect lighting up with inspiration of individual areas of the lung tissue on examination with the fluorescent screen; also grape like clusters of minute opacities occurring outside the root area which generally indicate foci of tuberculous bronchopneumonia (see Fig. 4).

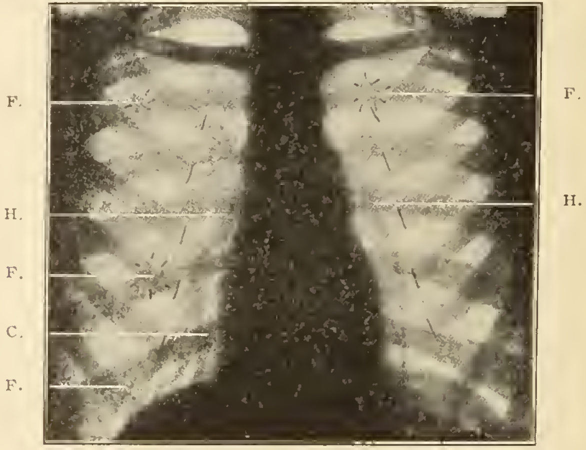

FIG. 4

Skiagram of chest from supposed case of spasmodic asthma following whooping cough in boy, æt. 9 years—in reality a case of hilus tuberculosis. Note blotching (H) at roots of both lungs (most distinct on right side) lying external and parallel to the narrow vertically placed cardiac shadow. At the right hilus there are two small opaque spots suggesting old calcified foci (C). Linear shadows may be traced passing toward the periphery and extending in the direction of the apices as high as the level of the second rib in front. Here and there throughout both lungs may be seen small rounded opacities (F) arranged in clusters, indicating foci of tuberculous bronchopneumonia. *N.B.*—After three months' open air treatment at Bournemouth patient gained one stone in weight, and the asthmatic attacks entirely disappeared. (Radiogram by Dr. Ironside Bruce.)

It is difficult to draw a hard and fast line of demarcation between the hilus proper and the pulmonary tissue outside the hilus—the perihilus. When viewed anteroposteriorly a vertical line drawn through the costochondral articulations affords a fairly accurate dividing line for ordinary clinical purposes (see Figs. 4, 6, 9, 10).

Incidentally it may be mentioned that in taking a radiograph of the lungs it is most important that the patient should hold his breath during the time of exposure to the X-rays.

In examining for enlarged glands in the region of the hilus a lateral oblique examination should always be made, as this frequently reveals a considerable enlargement of these glands, which otherwise would escape detection, as they are often concealed by the normal median shadow when examined anteroposteriorly. If much enlarged, they may cause a marked increase of the normal median opaque area (produced by the sternum, aorta and upper dorsal spine), and this broadening of the mediastinal shadow may be so pronounced as to simulate aortic aneurysm. The presence of very dark root opacities indicating calcified foci definitely proves the existence of tubercle in a quiescent or cured condition, and is strong evidence that the hilus root shadows are probably also tuberculous in origin (see Fig. 5).

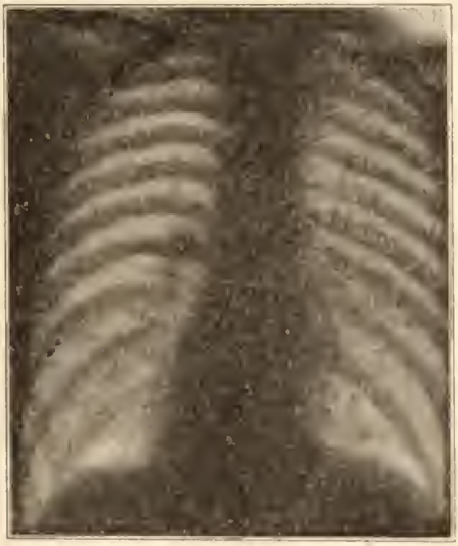

FIG. 5

Skiagram of chest of a boy, æt. 11 years, admitted to Royal Chest Hospital with obscure symptoms suggestive of pulmonary tuberculosis, but no definite physical signs. There are numerous calcified foci in the hilus and perihilus areas on the right side, apparently situated along the ramifications of the air-tubes and pulmonary vessels Linear shadows may be seen on both sides passing out from the root blotches in the direction of the right apex and left base. (Radiogram by Dr. Jordan.)

It goes without saying that the well known mottling and dark shadows so characteristic of active tuberculous disease in a more advanced stage would be even still more confirmatory, but here we are dealing mainly with pulmonary tuberculosis in its earlier manifestations, before the various accidental contingencies of autogenous infection and aspiration bronchopneumonia have occurred.

Apart, however, from X-ray evidence, there is a considerable and growing amount of pathological evidence in support of hilus tubercu-

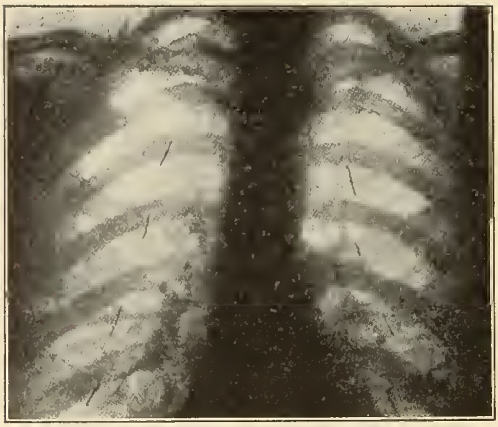

FIG. 6

Skiagram of hilus tuberculosis (supposed bronchial catarrh). From case of gentleman, æt. 24 years, with three months' history of obstinate cough and slight loss of weight, but no physical signs except deficient expansion of chest. Note the well marked hilus blotches, some of which may represent calcified glands, and also the linear striations passing upwards and outwards from the root area. There was defective movement of diaphragm. The hilus shadows indicate old healed tuberculous deposit, while the small, rounded opacities observable here and there are probably due to more recent tuberculous foci. (Radiogram by Dr. Ironside Bruce.)

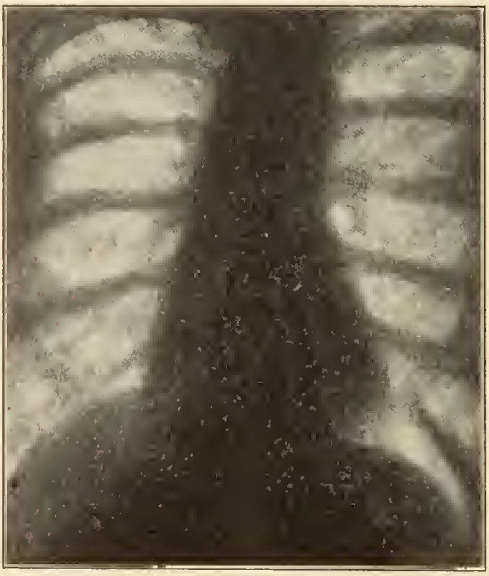

FIG. 7

Skiagram from lady, æt. 44 years, with history of recurrent hemoptysis, but no cough and no definite physical signs, except deficient air entry at right apex. Well marked reaction with 5 mgrm. of old tuberculin. Appearances indicate old hilus tuberculosis. Note the hilus blotches with coarse linear shadows passing toward apices and right base, indicating fibrous thickening along the air tubes. The dark rounded root opacities probably represent enlarged bronchial glands. (Radiogram by Dr. R. Knox.)

losis as an early manifestation of pulmonary disease. It is quite common to meet postmortem with cases of fairly extensive disease more or less limited to the root area and to the lung tissue immediately surrounding the root area, while the apices and peripheral portions of the lungs may be wholly or comparatively free from tuberculous infiltration. Fig. 3 is a good illustration of this type of case, of which I have seen a considerable number, in which extensive central disease is surrounded by a peripheral shell of healthy pulmonary tissue.

I have already referred at length to the almost universal presence in all postmortem examinations of tuberculous deposit in the tracheo-bronchial glands and surrounding pulmonary tissue in the neighborhood of the hilus.

THE RETRO-IMPULSION OF LYMPH AS AN EXPLANATION OF HILUS TUBERCULOSIS

The *retro-impulsion of lymph* is now a well proved phenomenon, the back flow taking place along the distended lymph channels, the valves of which are no longer competent. Sir Almroth Wright has observed this backward flow of lymph as being of frequent occurrence in bubonic plague—the extension taking place against the usual course of the lymph stream. The same phenomenon may be observed in the case of tuberculous cervical glands in childhood, the extension of the disease occurring in the opposite direction to the lymph flow. Experimentally it is comparatively easy to inject such a substance as adrenalin into the subcutaneous tissue of a limb and make it pass from the proximal to the distal portion of the lymph channel. This, indeed, is the principle of Bier's treatment of distal disease by a proximal bandage of a limb, and is also the rationale of Sir Almroth Wright's back massage in the treatment and cure by lymph lavage of tuberculous and inflammatory conditions of the terminal portions of the extremities.

Let us now apply the doctrine of retroimpulsion of lymph to explain the incidence of hilus tuberculosis.

That there is naturally a special predisposition to tuberculous deposit in the region of the hilus of the lung will appear from the following considerations:

(1) The great proportion of the foreign particles in the inspired air, including tubercle bacilli, impinge and lodge on the mucous surface of the trachea and larger bronchi. The bacilli, once they come in contact with the moist bronchial mucosa, are thereby imprisoned and their further progress along the bronchial tree is arrested. Many of these are killed by the phagocytes, while a few may escape. These

are absorbed by the pigment cells of the mucosa, or find their way through some breach of continuity and pass on by way of the bronchial and peribronchial network of lymphatics toward the hilus in the direction of the lymph stream.

Further, all the living bacilli which have escaped the phagocytic action of the cells of the bronchial mucosa and connective tissue stroma, in addition to those which may have been derived from the cervical and abdominal lymphatic systems, become eventually concentrated in the region of the root, containing, as it does, the terminal portions of the lymphatic drainage system of the thorax.

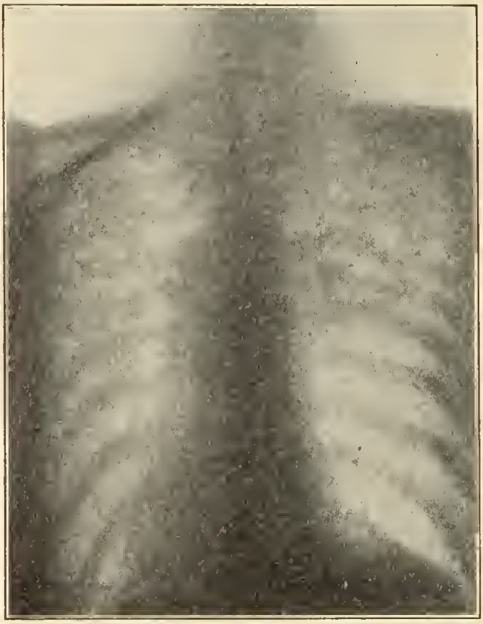

FIG. 8

Skiagram of chest of young lady, æt. 32 years, showing spread of tuberculosis from hilus to apices, particularly on the right side, where the mottled areas may be seen filling up the space between the hilus shadow and the apex. Note also the elongated tube like heart. Notwithstanding the history of a slight cough for two years, and the presence of tubercle bacilli in the sputum and the X-ray evidence of extensive disease of the right upper lobe, patient looked wonderfully well, and the physical signs were mainly confined to the right interscapular region, where there was slight dulness, prolonged expiration, and bronchophony. (Radiogram by Dr. Alfred Jordan.)

(2) After a time—it may be a period of years lasting from infancy to puberty—the bronchial lymph glands which are the ultimate destination of the bacilli and other foreign particles may become caseous and eventually calcareous, so that the lymph stream is

blocked and the afferent lymph vessel walls become distended, particularly at the terminal portions, so that the valves are no longer competent and a slow backward flow of lymph sets in.

(3) As a result the tubercle bacilli present in the sluggish backward flowing lymph stream filter through the walls of the distended lymph channels and set up a bronchopneumonic process in the surrounding pulmonary tissue. As these inflammatory areas heal up and cicatrize, the terminal lymph vessels become still further obstructed by the cicatricial tissue, and so the filtering, inflammatory, and healing process is repeated a little further out, the extension taking place slowly and steadily from the root toward the periphery and mainly in the tissues surrounding the bronchi and pulmonary vessels.

(4) The whole inhalation process is as a general rule so extremely slow (in the absence of accidental contingencies producing autogenous infection) that there is as a rule plenty of time for protective antibodies to be formed in the system and for immunity to be gradually established. In this way the hilus tuberculous infiltration gradually entirely heals and cicatrizes, while the increased phagocytic efficiency of the bronchial mucosa prevents the access of fresh living bacilli. This affords a rational explanation of the fact that although according to Hamburger and Monti 94 per cent. of the population under fourteen years of age have actually been infected with tuberculosis, fully 80 per cent. of these never exhibit symptoms or signs of manifest disease.

The retroimpulsion of lymph theory, of course, presupposes the hypothesis that the glands are the primary seats of tuberculous deposit, which is no doubt true in a large proportion of cases. It is probably equally true that in a certain number of instances bronchopneumonic extension in the peribronchial and perivascular pulmonary tissue is a primary phenomenon and the result of direct infection from the bronchial mucous membrane with secondary involvement of the glands, the extension in such cases taking place in the direction of the lymph flow, the glands acting as the natural barriers in preventing systemic infection.

Confirmatory evidence of the importance of tuberculosis spreading from the hilus into the lung tissue is obtained from a study of the various forms of pneumonoconioses, such as anthracosis, silicosis, etc. In the case of anthracosis (coalminers' disease) the carbon particles are found deposited mainly in the bronchial glands, while fibroid changes usually begin in the peribronchial lymph tissue, and, indeed, in the early stage of anthracosis the fibrotic changes are almost entirely confined to these parts. We get limited patches of fibroid bronchopneumonia, which here and there may coalesce into grayish black areas of fibrosis. Cornet states that similar conditions govern the inhalation of tubercle bacilli and that the greater number of the inspired bacilli are deposited on the ciliated epithelium of the upper passages and tend to be swept outwards by the current of mucus, though some find their way through the mucous membrane, and are carried by the lymph stream to the bronchial glands, which occurs with special frequency in the case of children.

The rapidity of the extension of the tuberculous process in the lungs is as a rule inversely proportional to the degree of immunity—natural or acquired—the determining factors being not so much the numbers or virulence of the invading bacilli, as the resistive power of the invaded tissues on the one hand, and the degree of vulnerability and phagocytic efficiency of the bronchial mucous membrane on the other. This, indeed, is the probable explanation of the difficulty of producing tuberculosis of the lungs in guinea pigs by the experimental introduction of bacillary emulsions into the trachea.

The fact that most of us have had at one time tuberculous deposit now represented by some fibrous thickening at the roots may in reality be an advantage. A definite degree of immunity has thus been established, and we are actually in a better condition to resist any future invasion than if we had never contracted the disease at all. It is probable, indeed, that the gradual reduction in tuberculosis mortality is largely due to the fact that the population is gradually becoming immunized in this way. This theory will serve to explain the alarming spread of, and mortality from, tuberculosis among the native populations of Bengal, the West Indies, Australia, and elsewhere, who have not been immunized.

The resistive power of the tissues depends mainly upon heredity, but also upon dietetic and other environmental conditions, while the vulnerability of the bronchial mucous membrane, as already mentioned, is greatly increased by catarrhal conditions such as are so frequently met with as accompaniments of measles and whooping-cough, which necessarily impair its integrity.

SEQUELAE OF HILUS TUBERCULOSIS

(1) *Chronic Fibroid Phthisis.*—Though there is in the large majority of cases of hilus tuberculosis a tendency to a natural cure of the malady, it is far otherwise in the minority of instances which ultimately exhibits symptoms and physical signs of manifest tuberculous disease. In a certain proportion of cases, probably as the result of individual lack of resistance, hereditary or acquired, the bronchopneumonic areas, instead of healing up and cicatrizing, continue to spread and coalesce with other similar foci to form larger

patches of racemose tuberculous bronchopneumonia. These, though undergoing a certain amount of fibrotic transformation, slowly but steadily advance until eventually there is produced the familiar condition known as chronic fibroid phthisis, which in some cases may reach a fairly advanced stage before it can be detected by the ordinary clinical methods of physical examination owing to the fact that the disease may not have reached the peripheral portions of the lung, which are alone accessible to the clinical observer through the medium of palpation, percussion, or auscultation.

Fig. 3 is a drawing of a specimen in the Brompton Hospital Museum from the case of a man, æt. 34 years, who died in the hospital. The following is the description of the naked eye characters of the right lung taken from the Museum Catalogue published in 1904: "Numerous recent racemose tubercles with pigmented centers and caseating circumferences are seen *affecting the central portions of the upper and lower lobes, a shell of practically unaffected lung tissue about two thirds of an inch thick separating them from the pleural surface.* This specimen explains how in some cases extensive tuberculous disease of the lungs may be present and yet the physical signs may be scanty or altogether absent."

In many cases, however, long before this advanced stage is reached, there is physical evidence of disease at the apex or elsewhere (Figs. 7, 8, and 9).

Whether it is true, as Dr. Jordan maintains, that the tuberculous infection often travels in the peribronchial tissue from the hilus to the apex at an early stage, the disease progressing at the apex while the track of infection from the root heals by a process of fibrosis, has not yet been confirmed by other observers. I think this apical complication is quite as likely, at any rate in a considerable portion of cases, to be due to some accidental contingency producing autogenous infection, whether by way of the blood stream or bronchial channels, or possibly even by direct exogenous infection through inhalation.

The view that apical tuberculosis is *always* secondary to hilus tuberculosis spreading upwards by means of peribronchial extension cannot be maintained, but that such a sequence occasionally occurs at a comparatively early stage is more than probable.

In Fig. 3 the disease seems to have extended more or less continuously in all directions, though the principal extensions are along the pulmonary vessels and air tubes.

(2) *Tuberculous Pleurisy.*—The great majority of subacute and chronic tuberculous pleurisies, whether dry or accompanied by serofibrinous effusion, are tuberculous in origin, although there may be

nothing in the lungs or elsewhere to suggest the presence of tuberculosis. Sir William Osler states that in almost every instance of tuberculous pleurisy there are really tuberculous foci in the bronchial glands or lung tissue. I have already mentioned that the pleural lymphatics join up into four or five large lymph trunks, which terminate in the bronchial glands at the hilus. Applying here also the doctrine of the retroimpulsion of lymph, the ready extension of the tuberculous process from the hilus to the pleura is obvious. The extensive tuberculosis of the pleura and the mediastinal glands so frequently found in cattle is significant in this connection.

I have submitted many patients with tuberculous pleurisy to X-ray examination, and in most cases there was evidence of hilus infiltration.

(3) *Asthma.*—In a large proportion of cases asthma *in children* is really due to reflex or direct irritation from enlarged bronchial glands and peribronchial thickening and infiltration. I have lately had several children suffering from asthmatic attacks examined by X-rays, and almost invariably we have found unusually well marked hilus shadows, and not infrequently dark discrete areas indicating calcified glands. Fig. 4 is an excellent illustration of such a case. In some cases large glandular masses have been discovered, particularly when viewed from the right and left lateral aspects. Occasionally the thoracic nerves may become involved in the hilus thickening, particularly the recurrent laryngeal branch of the vagus nerve, and such nerve compression may have an important influence in the production of the asthmatic attacks, although in children of a nervous diathesis the mere irritation and compression of the bronchial tubes may of itself be sufficient to induce asthma. In adults also asthmatic attacks are undoubtedly in some instances associated with hilus tuberculous thickening (Fig. 9).

(4) *Acute Miliary Tuberculosis.*—Evidence is accumulating in support of C. Weigert's hypothesis that miliary tuberculosis, whether pulmonary or general, is not only due to a blood infection, but is often associated with tuberculosis of blood vessels, and probably the most important sites of such vascular tuberculosis are the branches of the pulmonary veins. Caseous bronchial glands not infrequently become adherent to the adjoining pulmonary veins, penetration of which may lead to systemic infection. In rare instances a large caseous glandular or other focus may actually erode the vessel, thus discharging into the blood stream an enormous quantity, not only of bacilli, but of their toxins also; such a phenomenon would readily explain the occasional extensive diffusion of the infection, involving in some instances the tissues of the whole body (including the peri-

toneum and meninges), and would also account for the high pyrexia due to profound toxemia.

There is also the possibility at any time of a large number of bacilli being discharged into the thoracic duct or right lymphatic duct, and passing by way of the large veins at the root of the neck into the right side of the heart and so into the pulmonary circulation.

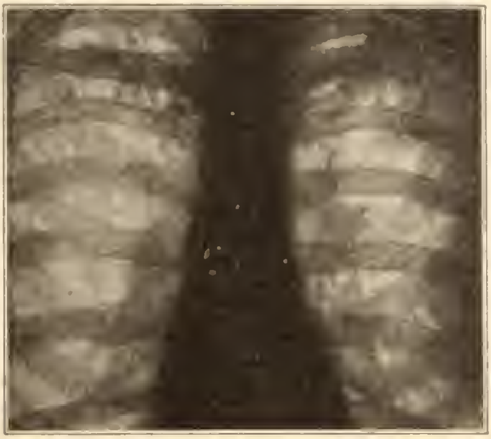

FIG. 0

Skiagram from case of chronic fibrocaseous tuberculosis (supposed asthma). Case of gentleman, æt. 30 years, with twelve months' history of asthmatic attacks. Had occasional cough and expectoration, which contained tubercle bacilli. The physical signs consisted of a few crepitations at the right anterior apex, numerous rhonchi scattered over both lungs, and impaired expansion of both sides of the chest. Note the elongated cardiac opacity, the extensive hilus blotches on both sides, the well marked striation and numerous rounded opacities in both lungs, and particularly the finger-like processes extending from the hilus to the right apex. (Radiogram by Dr. Ironside Bruce.)

DIAGNOSIS

While the symptoms of quiescent hilus tuberculosis are practically *nil*, those of active hilus tuberculosis are by no means characteristic and are almost identical with those of slight bronchial catarrh, being differentiated only by their persistence and a more marked degree of failure of health. Certain symptoms are suggestive—obstinate, dry cough, dyspnea, slight hemoptysis, feeling of tightness in the chest, wheezing (? asthmatic) attacks (particularly in children), occasional evening rises of temperature and increased frequency of pulse in conjunction with a varying degree of anorexia, languor, anemia, debility and loss of weight.

As regards hemoptysis, it is not uncommon to meet with patients in whom a pulmonary hemorrhage has been the one and only symptom suggestive of pulmonary tuberculosis. In not a few of these cases, particularly when the patient has been placed under suitable hygienic conditions, no symptoms ever develop and doubts are often expressed as to whether the patient had tuberculosis at all. I believe that many of these cases belong to the category of central tuberculosis starting in the root area, in which a caseating focus has accidentally ulcerated into a small blood vessel.

As regards physical signs, the disease is so deeply situated that it may reach a fairly advanced stage before giving any external indication of its presence, as it is only the superficial portions of the lung that are really accessible to the ordinary methods of clinical investigation. In this respect hilus tuberculosis resembles central pneumonia, and resembles it still further in the fact that the occurrence of a few crepitations at any one point often indicates, not a small superficial lesion, but an extensive, deep seated one, which at this particular point has reached the surface of the lung. The hearing of a few such crepitations in the infraclavicular region or supraspinous fossa is apt to mislead the physician and induce him to diagnose early apical tuberculosis when in reality he may be dealing with advanced central disease (see Fig. 3) with an apical extension. Just as an experienced dentist will diagnose extensive dental caries from the observation of a single black speck situated on the surface of a supposed healthy tooth, so in like manner a careful physician will often suspect extensive hilus and perihilus tuberculosis from the presence of apical signs in association with impaired movement—a suspicion which can be readily confirmed or negatived by a modern X-ray examination.

In a certain proportion of cases I have obtained important evidence from a careful examination of *the interscapular region.* It is not uncommon to find close to the root of the spine of the scapula impaired percussion, harsh bronchial breathing, prolonged expiration and increase voice conduction (bronchophony and pectoriloquy) (see Fig. 8). In some instances there is deficient air entry at one base, while basal rhonchi, for the most part unilateral, are by no means infrequent. My experience leads me to believe that the presence of *persistent rhonchi in a suspiciously tuberculous case often indicates central tuberculosis spreading from the hilus.*

Deaths from bronchitis in middle aged persons are rightly attributed by insurance offices to pulmonary tuberculosis.

In cases with recent tuberculous deposit there is generally a well marked tuberculin reaction, which confirms the diagnosis by indicating the presence of some active focus of disease.

In all instances where deep seated disease is suspected recourse should be had to *radiography,* which *is by far the most important* *and often the only method of diagnosing hilus and perihilus tuberculosis.* Indeed, it is practically impossible to form any adequate opinion of the extent of central disease apart from X-ray examination. To my mind, one of the greatest services rendered by radiography consists in the valuable information it affords in regard to morbid thoracic conditions.

It is indeed quite remarkable what advanced bronchopneumonic and fibroid changes may be revealed by the fluorescent screen and radiogram, quite unsuspected even after a most careful physical examination, in cases which were presumed either to be quite in the incipient stage or free from active disease altogether. This is particularly the case when the condition is complicated by emphysema of the lung. The hyperresonant percussion note masks any underlying dulness, while the accompanying bronchitic signs (whether rhonchi or *râles*) make it impossible to differentiate the adventitious sounds characteristic of tuberculous infiltration, although the concentration of bronchitic signs in the upper parts of the lungs may make one suspicious of serious underlying disease. Fortunately, these cases, so difficult to diagnose apart from the presence of tubercle bacilli in the sputum, are readily diagnosed by X-ray examination, as the clear emphysematous lung tissue stands out in marked contrast to the deep mottlings, blotches and shadows of tuberculous disease (see Figs. 9 and 10).

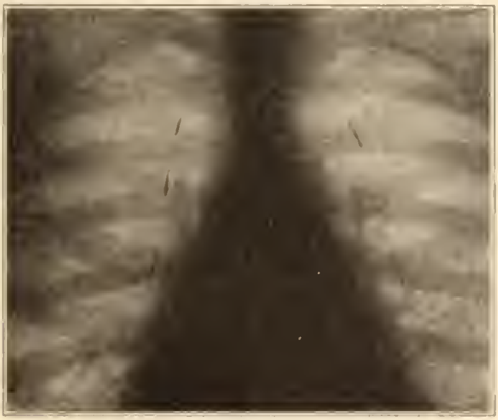

FIG. 10

Skiagram of case of silicosis, from gentleman, æt. 40 years, who had been exposed for many years to inhalation of silicious dust in South African gold mines. Note the increased opacity of both lungs, more particularly in the region of the hilus, with well marked linear shadows extending outwards into the emphysematous lung tissue. Was for some time troubled with spasmodic cough. After two years in fresh air all symptoms disappeared, and patient is now quite well. (Skiagram by Dr. Ironside Bruce.)

I have already discussed the characteristic X-ray appearances, including hilus blotches and linear shadows indicating fibrous thickening at the root, and the mottlings and clustered opacities of active tuberculous bronchopneumonia.

Blotches, opacities and linear shadows at the actual root are so common as to be considered almost normal—"the normal hilus shadows." On the other hand, shadows outside the hilus proper are much more significant, and definitely mottled or stippled areas in the perihilus tissue, particularly if they assume a clustered or racemose form, are highly suggestive of active tuberculous disease.

I have referred to the difficulty of diagnosing tuberculous infiltration at the roots from silicosis, and other forms of pneumoconosis, and from nontuberculous chronic inflammatory deposits.

My experience leads me to confidently state that it should be made a definite rule for all children and young adults who manifest the symptoms of persistent bronchial catarrh, particularly if accompanied by anemia, lassitude, or other signs of failing health, to be submitted without delay to an X-ray examination.

PROGNOSIS

The earliest stage of hilus tuberculosis is one of the most curable of all morbid conditions, as is proved by the fact that the great majority of all lungs exhibit postmortem evidence of healed tuberculosis in the root area, whether in the form of calcareous deposit or fibrous thickening. In the case of hilus tuberculosis not strictly confined to the root area, but extending into the immediately surrounding pulmonary tissue—the perihilus—the prognosis is as a rule extremely favorable if the patient's environment is a suitable one. When, however, the disease has reached the apex or other superficial portion of the lung giving rise to physical signs, the outlook is much less hopeful.

Generally speaking a good prognosis depends mainly on two factors:

(*a*) *The degree of resistance of the individual.*

(*b*) *The early diagnosis of the morbid lesion.*

(*a*) The degree of resistance depends largely on the comparative immunity and phagocytic efficiency derived from a good heredity, and also to a great extent on favorable environmental conditions. The ubiquitous tubercle bacillus probably obtains lodgment in the pulmonary root area of each and all of us sooner or later, and yet in over 80 per cent. of us the natural resistive power of our tissues is sufficient to effect a permanent cure. This proves the paramount importance of the natural resistive forces of the normal healthy individual. That environment as well as heredity plays an important part is proved conclusively by the fact that tuberculosis claims its victims mainly from the poorly fed, poorly clothed and poorly housed members of the community.

The importance of environment is still further borne out by a comparison between hospital and private patients suffering from tuberculosis. Thus in Dr. Pollock's Brompton Hospital statistics the average duration of life was two and a half years, as compared with Dr. Theodore Williams's statistics taken from the records of a thousand consecutive private patients, whose average duration of life was seven years.

(*b*) As regards the *value of early diagnosis* it is impossible to overestimate its importance. The late Dr. Gee was of opinion that "if physical signs were present the probabilities were against complete recovery, but if the disease were detected before this there was hope that it might be cured." This statement is as true now as it was twenty years ago. In modern radiography we have a method of diagnosing early cases of pulmonary tuberculosis that Dr. Gee in his day did not possess, it being now possible to discover deep-seated tuberculous disease in the hilus and surrounding pulmonary tissue before tubercle bacilli appear in the sputum and long before physical signs manifest themselves.

Dr. Jordan states that in favorable cases of what he describes as "peribronchial phthisis" the X-ray mottling of the lung tissue, indicating active foci of disease, becomes replaced by linear shadows due to the bronchopneumonic areas cicatrizing into fibrous tissue. In progressive cases, on the other hand, the mottling becomes more pronounced and definite blotches appear due to coalescence of the mottled areas, while in some places the linear shadows may become wider and more clearly defined, due to the accompanying fibrosis. The combination of these two appearances indicates the presence of definite chronic fibroid phthisis, which sooner or later spreads to the apex and superficial portions of the lung. The coexistence of a few crepitations at one apex with well marked retraction of the affected side of the chest generally indicates advanced fibroid central disease with an apical prolongation—an opinion which may readily be confirmed by an X-ray examination, which will reveal well marked central blotching and probably "roof tiling" of the ribs and costal cartilages. A permanent cure sometimes, though rarely, occurs even at this advanced stage, when the whole lung seems to undergo fibrous transformation, as in those cases described by the late Sir Andrew Clarke under the term "nontuberculous (?) fibroid phthisis." Such cases are usually met with only amongst the better-off classes, who are able to secure specially favorable environmental conditions.

STAGES OF HILUS TUBERCULOSIS

The stages of pumonary tuberculosis commencing at the hilus may be classified as follows:

First Stage: Pure Hilus Tuberculosis.—Hilus tuberculosis strictly limited to the tracheobronchial glands and the pulmonary tissue of the root area.

Second Stage: Perihilus Tuberculosis.—Hilus tuberculosis spreading some distance outside the root area in the form of linear prolongations, and accompaniment by a few scattered foci of tuberculous bronchopneumonia.

Third stage: Chronic fibroid phthisis.—There is usually extensive central fibrosis and numerous coalescing, and, it may be, caseating patches of broncho-pneumonia, with extensions to the apex or elsewhere, with or without excavation.

The prognosis in the first two stages of hilus tuberculosis is eminently favorable, granted moderate resistive power on the part of the patient and a suitable environment.

In the third stage one can, as a rule, only hope for quiescence and temporary arrest of the disease, though the life of the patient may be greatly prolonged if the disease remains mainly unilateral. The so called "one lung cases" belong to this group. Radiography and postmortem evidence, however, have made it clear that when one lung has reached the stage of advanced chronic fibroid phthisis there are almost invariably hilus changes in the other lung, glandular or otherwise, although the hilus blotches of the apparently sound lung may not in every case be apparent owing to the fact that it may be dragged beyond the middle line and be concealed by the normal median shadow. A consideration of the symptomatic manifestations in conjunction with occasional repeated X-ray examinations will enable the physician to accurately gauge the progress of the disease in these cases.

TREATMENT

Little need be said under this head except to emphasize the importance of commencing treatment at the earliest possible stage of the disease. Successful treatment is thus intimately linked up with the question of early diagnosis.

Dr. Gee's aphorism that "therapeutics must begin before physical signs are developed, and if you wait for physical signs you wait too long," exactly sums up the situation.

Professor Karl Pearson's conclusions in respect to the comparative futility of hygienic environmental treatment, as deduced from the after history of sanatorium patients, are largely fallacious, for the simple reason that fully 90 per cent. of patients admitted to sanatoria are already beyond the curable stage, although many of them are presumed to be in an early stage simply because no definite physical signs can be detected except at one apex, regardless of the probability of extensive underlying central disease.

If a patient suffering from hilus tuberculosis in an early stage is placed under favorable environmental and hygienic conditions, whether at a sanatorium or elsewhere, the active condition as a rule rapidly subsides, and a permanent cure in process of time is effected, so that calcareous nodules and linear cicatrices are left as the innocent witnesses of previous infection.

If, on the other hand, the cases are not taken in hand until physical signs develop, it is generally too late to effect a permanent cure, as an extension to the apex too often means the presence of more or less extensive tuberculous deposit intervening between the root and the surface of the lung.

It is the characteristic X-ray appearances in conjunction with a confirmatory positive tuberculin reaction to which we must trust in deciding when to commence treatment.

It is in these cases of early hilus tuberculosis that carefully administered tuberculin treatment achieves its most signal triumphs. The increasing thereby of the protective properties of the blood and tissues at this stage will serve in most cases to completely check further progress of the disease and pave the way to a permanent cure. This is particularly so in the case of glandular tuberculosis in children. This is the time for strengthening the resistive power of the organism, whether by hygienic methods or by specific tuberculin treatment, or better still by both methods combined.

I would conclude by expressing the belief that the universal recognition by the profession of the importance of hilus disease and its early diagnosis may inaugurate a new era in the treatment of pulmonary tuberculosis.

January 20th, 1913.

TYPHOID FEVER. ESPECIALLY IN REFERENCE TO TREATMENT

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(*Continued from May*)

SUMMARY OF DIGESTION

To sum up, I am sure by experience that appetite does mean the above fair-working capacity of the upper canal, and further that meat fiber, boiled egg albumen, biscuit paste, etc., can do no more harm than the coagulated casein of milk, which is so freely administered on other plans than mine. I am sorry to have been so tedious in this somewhat lengthy argument, but as it is the very crux of my position, it is very necessary, in opposing orthodoxy and tradition, to prove one's armor thoroughly, which I have done not only thus theoretically by argument, but also practically by experience and statistics, which I shall give at the close of this communication.

MANAGEMENT OF THE ACTUAL CASE

Let us now return to the patient and continue his management. I broke off at the first visit to a patient whom after examination we suspected might be sickening with typhoid. We advised him to go to bed, and I am sure that if harm accrues from neglect at this stage, it is entirely or at any rate mainly from omission on the patient's part to take this advice, from his attempts to get about and do his work while the microbes are multiplying in him, and his organs (the heart especially) are being wasted and weakened by pyrexial oxidation, and poisoned by foreign toxins of a most deleterious character. It is this which makes bed such an imperative point in treatment, for in bed the heart's work is reduced to a minimum.

At our next visit let us assume that the diagnosis is fairly well established—at any rate, until it is so established I have no objection to proceeding along orthodox lines of bed and slops. I must now emphasize the importance of examining the stools of the patient.

Stools.—I lay it down as a rule from which no exception should be made that one stool must be examined in every twenty-four hours during the active course of the disease. In my hospital cases where special facilities exist, I wash a stool through with running water in a large glass vessel. In private houses this is rarely practicable, but even here the stool should be saved and carefully stirred about with something that can be burned, so that the composition of the stool may be investigated. In the stools may be found (1) obviously undigested milk or other food; (2) blood; (3) sloughs from the intestine, and (4) mere feculent débris.

1. The presence of undigested milk or other food. This I take to be at once conclusive proof that more milk or other food is being given than can be digested, and is an absolute indication that the quantity must be considerably diminished. My own plan is to stop *all* food absolutely for twenty-four hours, and then if the patient wishes it to begin again with very small quantities, and if it be milk curds that are found (these are much more easily detected in a stool than other food remnants) I prohibit that article altogether in its natural raw state.

2. Blood. If this be visible to the naked eye, and yet is present only in small quantity, it is an indication that the intestinal lesions are of considerable severity, and it serves more to dot the i and cross the t of caution than to give any special line to treatment. It has lately been suggested that bleeding is a good thing, increasing the antitoxic powers of the body. If it be present in large quantity it gives the strongest indication for the free exhibition of opium or morphia, say 10 m. every two hours for eight or ten doses or until the patient is somewhat drowsy (or hypodermically, say 1/3 grain every four hours for three doses), and for the stopping of all food absolutely for twenty-four or forty-eight hours, so as to give as complete rest as possible both to the mind and to the intestine. Personally I have not found any other treatment of the slightest use. I refer of course to styptics and astringents; if an ice bag on the abdomen can be tolerated it cannot do any harm and may be of some little use; otherwise my view is that there is little to be done for hemorrhage.

3. Sloughs. These by themselves and without blood in quantity merely indicate a natural state of affairs in a case of some severity about the third or fourth week; provided they are thin, and more or less flocculent they need arouse no particular anxiety, but where thicker, larger and more gross, they arouse fears of a supervening hemorrhage and suggest starvation or caution in feeding for a day or two; their total bulk is a matter of some importance as indicating the extent of the ulceration.

4. Feculent débris. This is the desirable constituent of the stools, and the more they consist of this and the less we are able to discern of the other named elements, the stronger the indication to persist in the line of treatment which has been adopted.

Thus there is no doubt that the stools afford a source from which we gain not only valuable information on the present state of the patient, but also a fairly early indication as to the direction in which he is inclined to go.

Besides them we have other finger posts to guide us, to which we must now turn our attention. I have already intimated that at present, science has not yet supplied us with a workable remedy to cure the disease, and failing this, the symptoms exhibited by the patient are all important and must be discussed seriatim with a view to treatment.

1. Pyrexia. To combat this we have sponging, tepid or cold; ice cradling, cold baths and antipyretic drugs.

In ordinary average cases with a temperature ranging about 103° to 104° F., I hold strongly that tepid or cold sponging is quite sufficient, and my ordinary routine is to have the patient sponged when the temperature rises above 102.5°. I am quite satisfied provided this controls the temperature even for an hour or two, for I do not think that a temperature of even 104° or lower is in itself a very serious matter unless it remains persistently at 104° for many consecutive days, and hence I am accustomed to let the patient have a choice in the matter: to be sponged as often or as seldom as it gives him a greater degree of comfort than he was in before being sponged. So too we may take a temperature of 104° F. as the critical temperature at which we may advise ice cradling at the wish of the patient (a large cradle is placed over the sheet under which the patient lies, is covered by a blanket and has a row of small ice pails hung from its center bar). But when the temperature has risen (and persisted) over 104° F., it begins to constitute a danger in itself, and if it will not yield to sponging or cradling it is obvious that some more powerful means of controlling it must be adopted, either a bath must be made of the bed by means of a large mackintosh sheet, or the patient must be lifted into an ordinary bath tub. In either case the water should be at first about 102° F., and then rapidly cooled down to about 90°. The question of actual cold baths for typhoid has of late years been very hotly debated, and a considerable amount of statistical evidence has been brought forward to prove its efficacy. I cannot profess myself satisfied with this evidence, it is true, and I am happy to say so, in that my personal experience is very limited; but I have discussed the matter very fully with those whose experience is larger and failed to detect in their spoken word that enthusiasm which runs through the writings of others. They seemed rather to confess that it is a somewhat heroic remedy, either killing by depression and discomfort and disturbance, or, curing by a control of the fever, and that they had no clue as to which it would do before trial. Their conclusions seem to me only what one might expect, and consequently I think the method should be reserved for those cases where the outlook seems hopeless unless the temperature can be reduced. In one case I believe that I saved my patient's life by keeping her continuously immersed in a bath at 100° to 98° F. for nearly three weeks. Her temperature was very rebellious and threatening, and certainly those who nursed her were of opinion that she must have died but for the bath.

There are, of course, very serious practical difficulties in the way, for obviously in the homes of the poor and middle class bathing of this character throws an almost impossible demand on the resources of the household bathing accommodation and on the personnel of the establishment. In those of the rich, and in hospitals with unlimited assistance, it is certainly a possibility to give short immersion baths as often as seems necessary.

Antipyretic drugs, and especially those of the coal tar series, such as antipyrin, antifebrin, etc., I mention only to express a very strong opinion that in typhoid they are most dangerous and should never under any circumstances be given. I have tried them once or twice, and only by most active stimulation succeeded in averting a disaster. The reasons being that they are cardiac depressants.

2. The state of the heart and lungs. These should be noted most carefully at every visit both by the stethoscope and finger, as well as by ocular evidence of distress or comfort. It is not out of place here to speak of the clothing and postural position of a typhoid case, for these should be so adapted as to permit of the easy application of hand and stethoscope to any part of the chest or abdomen. It is my experience in private practice to find the patient lying on his back clothed in a tight fitting jersey or in a long nightdress of ordinary type, necessitating great disturbance of the patient. A typhoid patient should be clothed in a nightdress long enough indeed to reach the feet, but cut down the front and back and held together by tapes tied in bows to admit of rapid opening without disarrangement; the material may be at the choice of the patient, cotton, linen, woolen or silk. There is a constant tendency for the patient to lie on his back; this should be checked as much as possible by means of pillows arranged under the back, not only for the sake of the lungs, as I shall presently notice, but for our present object of allowing the back to be easily examined. With trained nurses these two small points are attended to as a matter of routine, but in small private houses they should be specifically ordered by the medical man.

In feeling the pulse, its frequency and softness are to be noted, while in listening to the heart, the chief point is the recognition of a good first sound easily distinguishable from the second. The more the first sound approximates in character to the second, the worse the condition of the heart muscle. Ordinary organic bruits are of course not here in question, though should one develop in the course of the illness it has a very grave significance, suggesting that the typhoid bacilli have attacked a valve. Basic hemic bruits may occur and are unpleasantly suggestive of severe blood changes and cardiac weakness. I think they are rare, but anyway they merely serve to emphasize the weakness.

The direct treatment of a weak heart in typhoid, by specific cardiac drugs, is in my experience rather unsatisfactory; it has to be remembered that the heart muscle is being affected by two factors: (1) pyrexia and (2) toxemia. We may relieve the heart by means directed to the fever, but to toxemia, neither digitalis, strophanthus, squills or any other cardiac drug offers an antidote; they can only be compared to the spur for a tired horse when the stable and a meal are the requisites. It is here, of course, that the controversy between the fanatical teetotallers and the old school of excessive alcohol givers rages so hotly. For my own part, while holding very strongly the view that the pharmacological properties of alcohol—dilation of arterioles, quickened or better regulated heart's action, soporific effect on brain, cortex, etc.,—even if only temporary, are very useful in helping these hearts, I still never order it as a routine practice through the illness, but resort to it as the chief drug to be used when I find evidence of cardiac weakness; and then I order it on the following principle, viz., that the total quantity I think desirable in twenty-four hours (varying from two or three ounces to perhaps twelve or fourteen, according to circumstances of acuteness and severity of the trouble) shall be divided into twenty-four equal portions and given hourly unless the patient be asleep (a very good sign of its utility), or unless, per contra, I find the patient more restless and his heart more uncomfortable, when it is to be omitted or the dose much diminished. I have a second use for alcohol in convalescence if, and when it helps appetite or sleep. Fortunately for both parties to the controversy—it is obvious that the extremes of either view cannot be right,—it seems certain that we must all of us be a little over anxious about the heart, it cannot be so serious a matter as we think or else many hundreds of deaths must lie at the doors of those who give freely or those who withhold. The form of alcohol I think matters but little, wine, spirits or beer according to the wish of the patient should he be capable of expressing a wish; if he is not so capable, then I think spirits are best as being the nearest approach to pure alcohol. To those who like it, I think beer or stout as a liquid food may be given freely up to say 3 or 4 pints daily.

With regard to the condition of the lungs, a certain amount of bronchitis or catarrh, judged by the presence of rhonchi and moist sounds, is almost a normal feature in typhoid and requires no special attention. If the pulmonary signs go much beyond this, we shall I think obtain the best results with most relief to the patient by rather frequent, every hour or two hours, change of posture from one side to the other, allowing him as seldom as possible to lie on the back. In some years it has seemed to me as though the type of the disease showed a special affinity for the lungs, perhaps the so called typhoid pneumonia or bronchitis. Many of these cases gave me great anxiety, in fact one or two thus ended fatally; no drug that I tried seemed to be of any material assistance, and I had to let the patients fight it out with the doubtful assistance of ammonia and other recognized expectorants, such as senega, tolu, potassium iodide or eucalyptus oil.

3. The mental attitude of the patient and the amount of sleep obtained. In the present day we are living through a period in which experiments on animals and *in vitro*, with modern bio- and physico-chemical methods are overwhelming us with a deluge of observations upon the problem of the ultimate means whereby the body protects itself from death at the hands of microbes. So fascinating seem the results and so cocksure are the exponents of theory that the above two old fashioned elements in progress and prognosis are sadly neglected, and those who notice or are guided in their clinical work by them are sneered at as old fashioned and behind the times. Well I cannot help but feel a little hurt by these sneers and a little sore, but for all that I would rather find that my patient had had three or four hours' refreshing sleep, that he felt hopeful about himself or even cheerful and could raise a smile at a small joke, than receive a report that his opsonic index had risen from .7 to 1.4. I am quite open to admit that if the latter observation be correct, it may afford the clue to the bedside ones, and I may perhaps go so far as to say that in years to come we may be able to diagnose, prognose and treat a case of typhoid without ever once seeing the patient, but that time has not yet come. When it does, it will not be all gain, for after all human feelings and emotions, that pleasant sense of personal interest and relationship between doctor and patient, are worth something, and they will have disappeared when that time has arrived.

I have seen cases in which I am sure a determination to get well and a belief in recovery were no despicable elements in a favorable result, and if such do not exist in our patients we must try and rouse them into being by our manner. No drugs will help. I am very chary too of any hypnotics, holding that the cerebral cortex is in a condition very similar to that of the heart, to be assisted more by cool sponging and such like simple measures than by drugs. Nor do I fear delirium over much so long as it does not seem of too depressing a nature; self consciousness then sleeps if the brain does not; besides, I think fear wears a patient out more than does delirium. The one golden rule in this sleep is never under any circumstances or for any purpose whatever to waken a typhoid patient from a natural sleep.

4. Presence of complications or unusual symptoms. These are of two distinct groups: (1) those due to the disturbed condition of the alimentary canal; (2) those due to the general toxemia; we will deal with them in that order.

(*a*) Vomiting. This is not only a very exhausting act in itself, but may also subject an ulcerated intestine to dangerous disturbance, and so is to be avoided in typhoid by every possible means. It is rarely if ever met with as a primary effect of the disease, but is almost invariably due to putting food into a stomach unfit for its reception, which in turn is shown by absence of appetite; hence, it invariably arises from routine feeding, either against the wishes of the patient or in opposition to the plain indications of a dry brown tongue associated with stuperose indifference of the patient. One should not wait for actual vomiting, but on the first indications of nausea or distaste for food resort should be at once had to the plain water diet for twelve hours or longer if necessary; on no account should any trace of food be placed in the mouth while the nausea persists. Dilute hydrocyanic acid with bicarbonate of soda I have found the most successful drugs, as they are the most usual and simplest.

(*b*) Tympanites. This whether as a natural result of perforation and peritonitis, or as an independent complication of the disease, I consider to be the complication of typhoid which is of most ominous significance. In the former case there is, of course, little to be said or done. Surgery offers the one sole chance of recovery and that a very poor one at best. In the latter case, *i.e.,* standing by itself, there is a good deal both to be said about it, and to be done for it. As regards its causation there is no doubt that in some severe cases it may make its appearance despite our most careful attention, though I feel sure that such cases are exceptionally rare if due attention be paid to diet, and I am absolutely convinced by my own experience that in almost every case it is actually caused by our insensate desire to pour food into an alimentary canal incapable of disposing of it, so that we are once more face to face with the problem of prevention by judicious common sense; prevention is moderately easy, cure is extremely difficult. The first point is, while the patient is still reasonably conscious and capable of expressing his feelings, do not feed him by routine contrary to those feelings. Then as the fever mounts and his feelings become less conscious and give us less guidance to be very cautious indeed about food of any sort. If you feel that some nourishment must be given, give a few grains of some digestive powder with it to help the stomach. We can now carry prophylaxia a stage further, for at every visit—and at the height of a severe case these visits should be not less than three a day—the hand should be placed gently on the abdomen and careful palpation performed. It is thus possible to detect the very earliest warning of the onset of tympanites. If things are right, the abdominal walls are nice and soft, relaxed, and the contour of the abdomen slightly concave, unless the subject be very stout. Now the slightest tendency to rigidity of the muscles or the slightest convexity of the abdomen over the condition appreciated at the last visit sounds at once a note of warning, and on the discovery of either we should immediately stop all food except water. My own plan at this stage is to administer at once two drachms of sulphate of soda in warm water and repeat the dose every two hours till the bowels are acting freely. The complication, I believe, arises most commonly when there is constipation, but even if there be diarrhea, investigation will show that the stools have but little feculent débris, and I believe the saline aperient is still the best treatment. I usually order an ice bag to be placed on the abdomen with the idea—possibly, or even probably false, that I am reducing the tension on the gut wall—that it seems to help a little, and I also resort to intestinal antiseptics, such as chlorine water and salol, and I think these may have here a distinct use to prevent fermentation and decomposition within the lumen of the gut, especially if the latter can be given in Keratin capsules. I cannot call to mind having a case of tympanites in which my dietetic principles have been adopted from the commencement of the attack.

(*c*) Constipation. This is by no means so uncommon in the disease as the average description of a case would suggest. Statistics seem to show that it is not an unfavorable symptom, and indeed this might be expected, for its presence comes very near to a mathematical demonstration that the colon is not affected by ulceration, and this in itself is so far a favorable circumstance in that it suggests that the ulcerative process in the bowel is of comparatively limited extent. We may accept all this in perfectly good faith for its deductions, and yet may not like the symptom itself to continue, because an unduly prolonged retention of material in the colon must at least offer increased opportunity for the absorption from it of undesirable materials, and therefore I do not allow it to persist; the only question is what purgative to employ. As a matter of routine I am in the habit of putting my typhoid cases on a grain of calomel every night, and often on one in the morning as well. Under this I have seen but little of constipation, as the calomel acts with a slight antiseptic action and also somewhat as a laxative. If, however, in spite of this the bowels are not open at least once in each twenty-four hours, my house physician has instructions to administer sulphate of soda in two drachm doses every two hours till the bowels act, a simple enema being also administered to attempt to clear the colon and prevent a *vis in fronte*. I have seen several cases improve remarkably on this treatment and have never had cause to regret adopting it; quite possibly it may have had a directly helpful effect in removing toxins as suggested by Dr. Thistle, Associate Professor of Medicine in Toronto University, who strongly advocates the continuous administration of saline aperients through the disease for the purpose of eliminating these toxins, and in his opinion thus possibly limiting ulceration of the bowel. His paper is well worth reading (B.M.J., II, 1906), and I am sure his argumentative basis is sound and his experience agrees with mine in that we have never seen any harm come from the procedure.

(*d*) Excessive diarrhea. I have seen so little of this that I hardly feel competent to say much about it. From six to eight stools a day come quite within the natural history of most cases which ultimately recover. If the stools become more frequent than this they should be personally inspected with the greatest care and suspicion, as I believe that they will always supply the clue to the cause of excess—either milk in obvious curds, or other food grossly and plainly undigested, or much sloughy material from the bowel and large quantities of blood stained mucus. In the former case the line of treatment is obvious: to stop all food but water; in the latter case my experience in the postmortem room suggests that the cause is extensive ulceration of the colon, for this, apart from hemorrhage, perforation or peritonitis, is what I have found in nearly all the fatal cases upon which I have performed a necropsy. I have, therefore, been led to regard excessive diarrhea not due to feeding, as a very fatal complication and its treatment as very unsatisfactory. I tried in one case with success an enema containing two drachms of tincture of opium, one ounce of subnitrate of bismuth, two drachms of powdered ipecac, an ounce of starch with a pint of hot water, but I should be very sorry to insist on this being really efficacious, though its simplicity makes it worth trying. The excellent results I have gotten in ordinary ulcerative colitis from appendicostomy make me suggest this procedure as of possible use in typhoid, though I have not had the pluck nor I am happy to say the occasion to try it.

(*e*) Hemorrhage, (*f*) perforation, (*g*) peritonitis. I have already spoken on these incidentally, and stated my views on their significance and treatment; here I have only to say that if surgery is to be of use its aid must be very promptly sought when once the necessity for it is recognized.

Such are the details about individual items in the treatment of typhoid. I may now give a general survey of a case as it occurs in practice.

After a day or two of indecision, the diagnosis becomes certain, and then two factors rather dominate the position. On the one hand comes the certain knowledge that several weeks must elapse before the patient will be well, or perhaps even out of danger; on the other hand, there arises an impatient feeling that we ought to be doing something very active to check or mitigate the attack; this has seemed to me the most difficult part of the management, it is certainly one on which text books are (perhaps naturally) silent. This feeling must be suppressed. We know only too well the natural history of the disease, and science has taught us by fairly conclusive argument that it is futile to try by direct means to kill the microbes or even to neutralize *in the blood* their poisons.

I have already devoted sufficient attention to purgations for mere evacuation of microbes and toxins.

We must trust to a masterly inactivity, coupling with it all our clinical instinct and acumen, and try to promote in the patient himself the "anti" powers which we know exist somewhere in blood or tissues. Encouragement by and confidence in his doctor form no small element in promoting tranquillity of mind in the patient, and this in turn I am sure is useful to him in the "antideveloping" direction. Watch the patient not the disease; try and estimate his feelings and wishes. If he is very thirsty let him drink when he pleases, limiting only the quantity of each drink. My own ideas of food and my own practice is to feed the patient about every four hours, say at 8 A.M. a cup of milk, tea, coffee or cocoa, or of bread and milk, according to his predilection; at 12 two tablespoonfuls of crushed meat or fish; at 4 P.M. two ounces of custard or custard pudding, and at 8 P.M. breakfast could be repeated, but if he declines any of these leave him alone. The one burden of my whole theme is a plea for the patient's comfort, and above all never wake him for food or anything else; natural sleep is of more value than any food, and he will not be asleep if anything is very wrong and requiring active treatment.

As the case proceeds follow on the general lines I have laid down unless you get indications to the contrary in the shape of complications. And when the height of the disease is passed, as indicated by the temperature chart, still give all your attention to the patient and not to the disease, feed him at the times that his appetite suggests, not quite perhaps in the quantities, but pay no attention to the temperature; this warning is especially necessary in the not very infrequent cases in which the patient feels quite well and has a healthy appetite and yet has a temperature of about 100° to 100.5° F.; ignore it and especially do not let the patient know it. It certainly indicates a continuance of bed and watchfulness for complications, but nothing else. An eminent surgeon went through this experience with a medical man looking after him bound by tradition, and he has graphically described to me his woes, how the milk, milk, milk got on his mind, and he is sure it added months to his convalescence, a point upon which my statistics have much to say, for they give me a clear fourteen days' gain of health for each patient. In an ordinary case there is no change in dietetic procedure, no ravenously hungry patient tempted into extremes.

In conclusion, let me repeat that there is no disease offers less chance of fixed routine in its management than typhoïd; each case must be judged and taken on its own merits and managed accordingly, and not only each case but at each visit one may see fit to alter anything and everything about the management.

I cannot claim infallibility for my methods, but I can say they are elastic and may be made to suit all cases, and I feel sure that strength is better maintained. Relapses occur with me as with others, but I feel very little anxiety about them in ordinary cases, for the patient has all the strength which is possible to him under the circumstances, for the ultimate—whatever may be the penultimate—source of antibodies must be the food, and of this he has had just as much as he has been capable of absorbing, though I must again as a finalé state that my plan is not one of stuffing a typhoid, as is sometimes said, but of feeding him according to appetite.

I will now add the evidence upon which I have built my superstructure, to wit, certain statistics. I offer them for completeness and to show that I am not writing from mere theory. Used thus they have a certain amount of value, but when we are considering the why and wherefore of a patient's death, impressions come much more to the front than mere figures; it is the individual we are dealing with and not rows of figures. The freedom from complications and the shortening of the total time of incapacity are my gains.

STATISTICS OF THE LONDON HOSPITAL CASES DURING THE TEN YEARS 1895–1904, INCLUSIVE

DR. F. J. SMITH

Year.	Number of Cases.	Deaths.	Average Residence Duration in Days.	Average Day of Disease on which Patient went Out.	Relapses.	Complications.	Average Day of Disease on which were Given		
							Bread and Butter	Fish	Meat
1904	17	2	46	59th	2	1	19	31	34
1903	19	2	42	58th	4	1	22	26	23
1902	22	3	46	58th	3	0	24	37	44
1901	10	5	58	71st	0	0	19	34	56
1900	9	2	50	63d	2	0	27	32	39
1899	14	6	54	60th	2	1	25	33	43
1898	5	0	52	63d	1	0	30	39	46
1897	6	1	55	63d	0	0	33	35	44
1896	4	0	39	54th	2	0	26	35	—
1895	7	3	42	54th	0	0	29	34	49
				THE REST OF THE STAFF					
1904	92	9	56	69th	13	12	34	42	48
1903	90	16	60	81st	11	8	37	44	54
1902	138	16	65	75th	21	10	40	44	58
1901	143	27	50	60th	12	13	30	37	50
1900	163	38	54	68th	21	24	36	45	53
1899	219	32	62	82d	29	23	45	50	63
1898	130	20	60	75th	20	19	42	45	58
1897	124	24	64	71st	21	15	35	42	57
1896	179	25	50	61st	31	15	35	45	58
1895	151	28	49	60th	24	7	33	41	55

THE RELATION OF FEEDING TO RELAPSES

Among Dr. F. J. Smith's 113 cases there were 16 relapses. Of these, 15 occurred after food had been given, and 1 before food had been given. The percentage of relapses was 14 per cent.

Among the 1,429 cases of the rest of the staff there were 203 relapses. Of these, 99 occurred before food was given, and 104 after food was given. The percentage of relapses was 14 per cent.

It will thus be seen that the early feeding seems to have had very little effect upon the incidence of relapses.

Year.	Total Number of Days on which Bread and Butter was Given.	Number of Patients in which this Date was Recorded.	Total Number of Days on which Fish was Given.	Number of Patients in which this Date was Recorded.	Total Number of Days on which Meat was Given.	Number of Patients in which this Date was Recorded.
1895	117	4	135	4	146	3
1896	26	1	105	3	—	—
1897	132	4	172	5	222	5
1898	122	4	196	5	231	5
1899	173	7	265	8	343	8
1900	193	7	225	7	276	7
1901	98	5	146	4	225	4
1902	418	17	528	14	579	13
1903	273	12	429	16	494	15
1904	254	13	341	11	515	15
	1,806	74	2,544	77	3,031	75

$$\text{Average day on which bread and butter was given} = \frac{1{,}806}{74} = 24$$

$$\text{Average day on which fish was given} = \frac{2{,}544}{77} = 32$$

$$\text{Average day on which meat was given} = \frac{3{,}031}{75} = 41$$

A NEW CONTAGIOUS GANGRENE IN WHITE RATS

(PRELIMINARY NOTE)

By LEONARD KEENE HIRSHBERG, M.A., M.D.

Johns Hopkins, Baltimore, Md.

The white rats used in the psychological laboratory of the Johns Hopkins University in February, March, April, and May, 1913, have suddenly developed a highly contagious infection that attacks only the feet and legs of the animals. The disease appeared spontaneously in one litter of white rats in January, and soon extended to adjacent cages one at a time by contact until rigid disinfection cut the epidemic down to sporadic outbreaks, which are still occurring—May 23, 1913.

This disease—which Dr. J. R. Mohler, Chief of the Division of Animal Pathology of the Department of Agriculture, Washington, tells me is new to him and has never before been described—is characterized by a swelling of the feet and hoofs, which become black and gangrenous. The general health of the rats becomes somewhat affected, they are unable to go through their learning performances, and usually must be killed.

None of them have died, and another peculiarity is that the gangrene attacks the fore legs of the rats. Indeed, only in one instance so far has one hind leg become infected with this rat gangrene.

The process begins evidently between the soft tissues of the toes of the rats and spreads thence up into the toes, feet, and legs. It is a typical gangrene with distinct lines of demarkation, but there is an abundance of white fluid pus.

I have isolated the organism, which seems to be specific, for when vaccinated into the feet of well rats the specific gangrene appears. Complete details of the disease and a study of this organism, which has been tentatively named gangrenofaciens Hirshbergii, will appear very soon.

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EDITORIALS

THE ABUSE OF SURGERY

Thirty years ago the surgery in America was done chiefly by two classes of men. The masters had given themselves opportunity of position, and their life work was devoted to that part of medicine. The general practitioner was expected to operate in emergency cases and to do certain kinds of minor work not calling for the technic of the expert.

We are now in a transition stage. Hundreds of small hospitals have been erected in various parts of the land, and this fact as a fundamental general proposition stands for progress. Simultaneously with this development of the small hospital idea several traits in human nature have come strongly into evidence. A certain prestige is popularly supposed to inhere in operative surgical work, although this is a mistake belonging to the present crude stage of our cultural period. In response to this popular idea, a large proportion —certainly half of the men on every hospital staff,—feel it incumbent upon them to obtain the éclat that goes with operative surgery. Two results follow. Here and there a man of great natural talent becomes ascendant, and a valuable addition to the ranks of surgeons; but most of the operators reach their limitations quickly, bring discredit upon surgery as a whole, and play a really important part in limiting over population.

As the late Dr. Maurice Richardson has truly said, "It is a misfortune that so many people recover from surgical operations, no matter what is done to them." It is the morbidity rate rather than the mortality rate upon which we are to fix attention when the question of the abuse of surgery is under discussion. The moral side of the question seems to me to be this. Any one may have a right to take up surgery, provided that he gives himself the best preliminary training within his power before attacking the public, knife in hand. His duty is, then, to devote himself closely to the subject, with elimination of all other work as rapidly as lies within his power to do so, and with no intention of continuing to do general medical work in connection with surgery.

All this assumes that the question is to be worked out along lines of natural competition. The State, however, is the sufferer from the present day abuse of surgery, and if the matter is really taken in hand as a function of the State, laws may be enacted which make it obligatory upon any one who is to engage in operative surgery to have a prescribed preliminary course of study and of technical training. Members of the medical profession, left to their own inclinations, follow natural laws of competition, with the public as chief victim. This being the case, the chief victim, awakening to a realization of the conditions, will probably place surgery again in the position which it occupied thirty years ago. The destructive influence of division of fees belongs to natural competition, but the public, as a sufferer from its own carelessness, will, I believe, correct this abuse at the same time that it insists upon certain standards of qualification in its surgeons. These qualifications would naturally include that high degree of character which goes with a high degree of scientific attainment.

ROBERT T. MORRIS.

RURAL HYGIENE

Everywhere the point is being driven home that civilized people are becoming nations of city dwellers, and sanitarians are insisting that the phase of modern life must inevitably lead to racial degeneration. This mode of regarding the question is correct in so far as it goes; that is, country life in itself is more healthy than town life. It is obvious that generally speaking rural life is the more healthy, in that the air is purer, there is less overcrowding, there is less gross vice and the stress and strain of living is not so obtrusively evident.

But the picture has another side and life in the country is not the idylic one depicted in the glowing verse of the poet. It must be remembered that the poet is allowed his license and from Horace down has when writing of the country given free rein to his imagination. He paints in well chosen words; the ivy and creeper covered cottage, with its low thatched roof, its dormer windows with small lattices, surrounded by noble trees enshrouded by thick foliage, with its adjacent lake or pond, and the man in the city is enraptured and yearns to end his day in such a place. The prosaic and practical sanitarian, however, knows full well that a house of this description is too frequently a whited sepulcher. Externally and in the fitting seasons it is pleasing to the eye, but really a trap for the unwary. Its thatched roof provides a comfortable home for rats and other like animals, the ivy and creeper harbors innumerable unpleasant insects, the trees with the thick foliage shut out the life giving sun, while the gleaming water keeps the place damp and the little pools are convenient breeding spots for mosquitoes. The drinking water is always to be viewed with more or less suspicion and typhoid fever is rife in all parts of the country. Of course, country dwellers, as a rule, do not inhabit picturesque dwellings as described above, but ugly farm houses, which too often are a blot on the landscape, and farmers and their families and employees live in a manner the reverse of sanitary. In a few words, although country life ought to be healthy, under existing conditions it seldom is so. A sanitary farm house is rare, the majority being unsanitary. Many are badly built, being flat on the ground with little or no ventilation underneath. They are usually damp, bedrooms are small and ill lighted, adequate ventilation is almost wholly lacking, and the water supply is frequently polluted by sewage. In the summer time, by reason of manure and sewage deposited in shallow pits close to the house, flies swarm and convey dirt and even infective material into the house and on to the food. The American farm house in the general way is not only anesthetic, but in many respects unhealthy. In addition the wives and womankind of the farmer rarely understands how to prepare and cook food properly. Bread is frequently badly made and too much smoked, pickled and salted pork is eaten. The frying pan is always too greatly in evidence, and pickles and vinegar are consumed to an inordinate extent. Care of the teeth is wofully neglected and facilities for washing are not so prevalent or adequate as they should be. The habit of self doctoring is universal among the farming population, and the sale of proprietary and patent medicines in agricultural districts is enormous. The consequence is that the farmer is not the robust, vigorous, muscular and ruddy individual sung by the poets, but more often a lank, sallow, lantern jawed dyspeptic looking man, while his wife is not the rosy cheeked, buxom, bustling woman of whom we read, but a depressed, anemic looking, enteroptic person, whose life seems an utter burden.

Country life should be and might be ideally healthy, but present conditions of rural hygiene must be greatly altered before it becomes so. People are herding together in towns, and the cry has gone up that they must get back to the land, but before they will do so the situation in the country as regards sanitation and comfort must be greatly bettered.

THE EFFECT OF MONOTONOUS TOIL AND PARTICULARLY OF SUCH TOIL IN YOUTH

Monotonous toil or occupation of any kind characterized by sameness has a peculiarly deadening effect on the human brain, and in consequence a harmful reaction on the physical powers. For example, the work of an employee in a bank, of a clerk in an office, or of a girl in a store, although not laborious is unhealthy to some extent in that it varies little from day to day, and as a rule provides no mental stimulus and affords small scope for the assertion of individuality. The restrictions incident to this kind of work inevitably have a narrowing effect, and even when sanitary conditions are good the body suffers from the bonds imposed upon the mind. Monotonous toil, be it what it may, affects injuriously the adult, but when the toiler is young the evil results are more obviously apparent. As was pointed out by Miss Margaret McMillan, London, England, in a paper read before the International Congress of Hygiene and Dermography at Washington, there are employments which induce deformities and predispose to disease—onesided labor, for instance, as that of milk carriers, girl nurses, baker's boys, telegraphists, forge workers, typists, machinists and so on. However, there may be cases of monotonous toil which show no development of actual disease or even of incipient deformity. What then saves these young workers from the ills that overtake their fellows as the result of their employment? A good constitution goes for much, but this gift will not account for all. Other factors, social or otherwise, enter into the question and must be considered. There are in the majority of cases interests from without which stimulate the minds and which are wholly apart from the work itself. If the work be uninteresting, the worker will undoubtedly suffer in mind and in body, if he or she do not have something to look forward to with pleasurable anticipation. The Bible teaches us that a certain amount of rest and enjoyment is necessary if the body and mind are to be kept up to a healthy standard; and be we religious or not, we cannot deny that the sanitary teachings of the Old Testament are wise and rational. Hence holy days, sabbaths, jubilees, were instituted, and before the establishment of Christianity the highly cultured pagans, Greeks, Egyptians and Romans well understood the significance of rest and pleasure. At the present time in America, the craving for and insistence upon having enjoyment are more evident than in any country, and are perhaps being carried to an alarming extent, but at the same time among the foreign population there is an immense amount of monotonous toil among the young which is unhealthy and tends to degeneration. In all parts of the civilized world there is an eagerness for pleasure among all classes which has never been exhibited before. This characteristic of our age is in some ways a good symptom and in other ways a danger. It is well and in the best interests of health that young persons should not be condemned to a life of monotonous toil. Children should not be allowed to work at all until they have reached a certain age, and even then their hours of labor should be restricted and they should have plenty of time for healthy relaxation. On the other hand, there is an unfortunate tendency in this country to shirk work as much as possible and to have what they term a "good time" no matter at what cost. There are many adolescents here who work at monotonous toil much longer and harder than is good for them, and the law should step in and prevent the continuance of so dangerous a custom. But there are also a large number of young persons whose only object seems to be to do little work and to indulge in pleasures, many of them of a questionable nature. This is harmful for all concerned, and is calculated to sap the vitality and energy of the nation. While monotonous toil is assuredly not beneficial to the young, monotonous, so called pleasure is no less harmful. The happy medium is the point to strive for.

DIET IN TYPHOID FEVER

Not many years ago the physician who ventured to order solid food for those convalescing from typhoid fever would have been regarded as a madman. Milk in small doses was the only food allowed in the large majority of hospitals until the temperature had been normal for the space of a week. The mode of feeding within recent years has changed, and now, perhaps, more often than not, the typhoid patient who has an appetite is allowed a fairly liberal choice of foods by hospital physicians, and by those in private practice. At any rate, he is rarely now restricted to a purely milk diet. The results of this more catholic manner of feeding have been satisfactory, and none of the ill effects predicted by conservative physicians have occurred. In fact, on the whole, statistics seem to show that a mixed diet, or rather a diet which appeals to the patient's palate, has brought about no more relapses or perforations than feeding typhoid patients under the older methods, or on milk alone.

In the present number of the AMERICAN PRACTITIONER, Dr. F. J. Smith, physician to the London Hospital, concludes a paper on typhoid fever, and especially its treatment, the first part of which appeared in the May issue. Dr. Smith is a well known authority on typhoid fever and was the pioneer, at least on a large scale, in breaking away from the routine feeding by milk, allowing patients within strictly reasonable limits foods that they fancied. Sir William Gull, and others, may have been before Dr. Smith in advocating a more generous diet for typhoid fever patients who had passed the crisis and were returning to a normal state of health, but Dr. Smith was the pioneer in altering the diet of such patients. In this paper, Dr. Smith has made quite plain his views on the treatment of typhoid fever, and consequently there is no need to recapitulate.

Suffice it to say that in dealing with typhoid patients, he makes it a cardinal rule to allow the patient very wide limits as regards the quality of food, but restricts him as regards quantity.

HONOR TO A GREAT SURGEON

It has just been announced that among those who shared in the king's birthday honors was Mr. W. Arbuthnot Lane, the well known English surgeon. Mr. Lane, who has received the title of baronet, has made a world wide reputation as a daringly original operator, and is almost as well known in this country as in England. Some years ago he brought out an ingenious method of treating fractures, a method which he has demonstrated on several occasions in New York and Chicago. But perhaps that which has made this English surgeon conspicuous of late years is the theory which he promulgated as to the cause of intestinal stasis and his treatment of this condition. His view is that intestinal stasis is caused by a kink at the terminal part of the ileum, "Lake's kink," and his operation of short circuiting the large bowel and thus rendering a clear passage through that organ has been attended by such successful results that on the face of it it seems that his theory is correct. He was also the first to advocate the use of liquid petroleum for those cases of intestinal stasis for which an operation was not considered necessary.

A few weeks ago Sir W. Arbuthnot Lane was chosen to perform an operation upon the Duchess of Connaught. In fact, the life history of this bold and skilful operator has been a series of startling successes. His many admirers among the members of the medical profession in this country and in Canada will hail the honor done him not only as a fitting climax to a brilliant career, but as an eminently proper recognition of that branch of the profession which he so ably represents. From a purely personal standpoint his numerous friends on this side of the Atlantic appreciate the fact that as a man no one is more worthy of this distinction than the newly created baronet.

FLIES IN RELATION TO INFANTILE DIARRHEA

The connection between flies and typhoid fever has been shown to be intimate, and it has been proven conclusively that epidemics of that disease especially during military campaigns have been chiefly spread by the agency of flies. Flies are under suspicion as being factors of consequence in the dissemination of various diseases and of infantile diarrhea in particular. Although, owing to the fact that the infective agent of infantile diarrhea has not been identified, no direct evidence is forthcoming that flies do on occasion convey the germs of this disease, yet indirect evidence appears to point in this direction. In the *Lancet,* January 4, 1912, Professor C. J. Martin discusses this matter, and draws attention to the coincidence that epidemics of infantile diarrhea in towns exhibit a close time relation with fly prevalence. Epidemic diarrhea of children does not occur except during that season when flies are abundant and active, and a close study of the subject demonstrates in a striking manner the relation between fly population and cases during the summer, so much so indeed, as to suggest something more than a mere accidental dependence upon the same phenomena. Dr. Martin seems to prove that temperature does not play a prominent part in the production of pathogenic bacteria that many persons attribute to it, and therefore, proceeding on the assumption that some sort of infective agent causes infantile diarrhea, it is difficult to understand that hot weather *per se* is responsible for an epidemic of the disease. Of course, it is conceivable that hot weather may bring about a change in virulence of pathogenic bacteria, but our ignorance regarding the etiology of infantile diarrhea precludes us from stating this with confidence. On the other hand, there are excellent *à priori* reasons for supposing that flies can transmit the infective agent of diarrhea. Presuming, that infantile diarrhea is of infective origin, and the presumption has a great deal to support it, Dr. Martin holds the view, strengthened by the results of the studies of numerous investigators, that flies may be conveyors of the infective agent of infantile diarrhea on a very considerable scale and he sums up his consideration of the question as follows: 1. That the fly carrier hypothesis is the only one which offers a satisfactory interpretation of the extraordinary dependence of the epidemic upon the accumulated effect of temperature. 2. That it offers a ready explanation of the spread of infection to neighbouring children who have no direct personal contact with the patient. 3. That the peculiarities of the relation in time between fly prevalence and the epidemic in different localities are not inconsistent with the view that fly carriage is essential to epidemicity.

In short, while the evidence against the fly in this relation is wholly circumstantial, it is circumstantial evidence of so damaging a character, that the fly may be said to have been found guilty, and in devising means for preventing epidemic infantile diarrhea, action should be taken against this insect. From every point of view, however, it is desirable, almost essential, that a campaign of extirpation should be waged against the ubiquitous house fly.

Delenda est Musca would be a fitting slogan for those who believe in the disease bearing properties of the fly.

DIGEST OF CURRENT MEDICAL LITERATURE

Discussion on Alimentary Toxemia by Fellows of the Royal Society of Medicine, London, and the use of Liquid Petroleum in this Condition.—A discussion on alimentary toxemia was begun some few weeks ago by Fellows of the Royal Society of Medicine, London, and concluded on May 7, 1913. The *raison d'être* of the discussion was, in the first instance, to thoroughly thrash out Mr. Arbuthnot Lane's views as to the causation of intestinal intoxication, or perhaps it might be said from Lane's point of view both a cause and the effect of alimentary toxemia. Lane holds that continued constipation, amounting ultimately to a condition of chronic intestinal stasis, is due to a kinking at the terminal part of the ileum. Dr. Herz, on the other hand, is of the opinion that this condition is owing to a derangement of the ileocecal mechanism. Professor Keith agrees with Herz's conclusion. Some of the speakers at the meetings favored Lane's theory, some Herz's views, while others accounted for alimentary toxemia in various ways. It would be impossible within the scope of a comparatively brief digest to attempt to review the opinions of the many speakers, and it will suffice to deal with, in a succinct manner, the theories set forth by Lane and his followers and those advanced by Herz and others. As said before, Herz does not believe that chronic intestinal stasis is caused by a kink, but by a derangement of the ileocecal mechanism. Further, he is inclined to doubt that chronic intestinal stasis will cause alimentary toxemia and the many sequential evils which Lane attributes to the condition. However, Lane himself and several other well known men, physicians and surgeons, declare that the kink at the terminal part of the ileum is responsible for chronic intestinal stasis followed by alimentary intoxication, ulcer, cancer and so on. The radical remedy advocated and practised by Lane is what is known as the short circuit operation, and he is able to point to the fact that in the majority of cases in which he has performed this operation, the results have been successful. Herz is of the opinion that only when the whole of the colon is involved and thorough and prolonged medical treatment has proved completely ineffective is ileosigmoidostomy, the rational treatment. Lane contends that in any event, the large intestine is more or less of a useless structure and brings as evidence that the great bowel can be excised and health maintained, while Professor Keith concludes that it is not the organization of the great intestine that has failed, but that our modern dietary sets it a task for which it is not adapted. He points out that if an engine runs unsatisfactorily, it may not be from a fault in its mechanism, but from a defect in the fuel. Those who regard the great bowel as a useless structure blame the engine; for his part, he stands by those who blame the fuel. He thinks that what should be proved, is not that a man can live in health after the great bowel has been excised, but that a man without a colon is in a better state than a man with one.

A special feature of these meetings was the high praise given by several authorities to liquid petroleum in the treatment of intestinal stasis. Lane was, if not the first, one of the first to call attention to liquid petroleum as a valuable remedy in the treatment of intestinal stasis. At the meeting in New York in November, 1912, of the Clinical Congress of Surgeons of North America, in reading a paper on intestinal stasis he had this to say of the use of liquid petroleum: "In the treatment of such cases germicidal drugs, such as arsenic, mercury and iron, autogenous vaccines, purgatives, foods not easily decomposed, large quantities of water and colonic flushing had been among the measures employed. He believed, however, that the effects produced by these remedies were by no means to be compared to the results obtained by the use of liquid paraffin. The effect of this agent when administered at appropriate intervals during the day was to produce evacuations which ceased to be firm, to hasten the passage of the intestinal contents, while accumulations of feces were obviated. Pressure on the splenic artery was relieved, and this allowed of a better blood supply to the brain.

Mr. George Rowell, speaking in the discussion in London, said in part that he saw cases of pyorrhea almost daily and would like to remark that he had seen complete cures by vaccines as well as by scrupulous local treatment and that he knew of many cases in which the cure had been aided by paraffin internally. Two of his dental friends of large experience in this disease made an almost routine practice of prescribing paraffin for these cases, and one of them had told him that he did not know whether the paraffin or the local treatment had the largest share in effecting a rapid cure. A large number of facts were being brought to light in various branches of medical knowledge which when examined, were found to fit in with, and lend support to, Mr. Lane's theories. The question of infant feeding might be alluded to as an example. In 1901 Dr. Eric Pritchard came to the conclusion that disease in infants, and much in after life, was largely due to over feeding during the first year. This he held caused over development in the length of the bowel, such overgrowth often extending to many feet, for which there was no adequate room, and therefore peristalsis was impeded, and delay in the passage of the contents of the intestine resulted. For the prevention and treatment of this condition he had given paraffin very largely, and agreeing with Mr. Lane was convinced that the constant exhibition of paraffin had a marked effect in the prevention and cure of tuberculosis. Dr. R. Murray Leslie said in part that in the case of chronic intestinal stasis the vital forces might be stimulated by hygienic, dietetic and other remedies, by vaccine and enzyme therapy, and by the giving of various glandular extracts containing the products of internal secretion. The production of bacterial toxins must be diminished and their elimination facilitated. In early cases simple remedial measures, such as diet modifications, particularly reduction in animal proteids and the substitution of vegetable and purin free diet for a certain period; aperient remedies and lubricants, particularly liquid paraffin; abdominal massage, supporting belts and physical exercises were usually quite efficacious.

Mr. H. C. Fagge said in part: "As yet I have no fixed opinion as to the right treatment of the ileal kink. When slightly developed division of the band gives at least temporary relief, but a raw surface has necessarily been produced, and at present we have no sure method by which we can prevent adhesions forming over this area; paraffin and an abdominal support often give much assistance." Mr. Clarke said he had enormous faith in petroleum oil for removing stasis.

It will be observed that petroleum oil was highly praised at the meetings referred to above in the treatment of chronic intestinal stasis. Mr. Rowell alluded to Dr. Eric Pritchard's eulogy of petroleum oil in the treatment of infants, and therefore it will not be out of place to introduce some of Dr. Pritchard's conclusions here. Writing of constipation of infants in his work on the Physiological Feeding of Infants, 1909, he says: "There is no vegetable nor mineral oil that can reach the lower bowel and soften constipated stools unless it is given in such excess that it is neither digested nor absorbed; hence there is a danger of fat dyspepsia; but a mineral oil such as petroleum in whatever doses it is administered will always reappear in the motions and soften them to an extent which is directly proportional to the amount given. Petroleum cannot decompose in the bowel and cause offensive motions like excess of fat. It cannot become absorbed and tax the resources of the liver; in fact, it behaves as the most perfect mechanical lubricant of the bowel and, as far as I know, has absolutely no injurious therapeutic action. I have used it now consistently for two years, both in my private practice and at my Infant Consultations in Welback Street and I have never had any reason to find fault with it. I find it an excellent vehicle for a large number of drugs more especially for pancreatic extract."

In Great Britain the testimony in favor of petroleum oil in the treatment of obstinate constipation and intestinal stasis seems universal, and in this country, where disorders of digestion and alimentary toxemia are common, there should be a wide field for its use.

SOCIETY REPORTS

A CASE OF JUVENILE PARESIS

At the last meeting of the New York Neurological Society, held at the Academy of Medicine, April 1, 1913, the president, Dr. Smith Ely Jelliffe, presented a case of juvenile paresis in a girl, fifteen years old, whose birth was apparently normal and who developed normally as far as walking and talking were concerned. Her parents stated she had always been backward in reading. About four years ago she began to have pains and stiffness in her legs, and attacks which were called "fits," during which she would become rigid, but did not lose consciousness. About this time there was an apparent retrogression in her mental development, and since then she had slowly deteriorated. Neurologically, she showed the Argyll-Robertson pupil, a tremor of the tongue and face, an infantile mode of speech with a degree of hesitation that amounted almost to stuttering, and a loss of knee jerks. These symptoms, briefly stated, had led Dr. Jelliffe to regard the case as one of paresis of the juvenile type. The girl's father died at the age of forty-two after a maniacal attack, and was a paretic. The mother had Argyll-Robertson pupils. The patient had Hutchinson's teeth.

Dr. B. Sachs, in discussing this case, said he had a distinct impression that juvenile paresis was an extreme rarity. In the case shown by Dr. Jelliffe there was possibly a congenital syphilitic condition, with a partial arrest of development and consequent mental deterioration. The findings, as given by Dr. Jelliffe, were not sufficiently definite to base the diagnosis of juvenile paresis upon them. The child's speech did not strike him as paretic in character, and the speaker said he would be inclined, in a case of this kind, first of all to try the effect of energetic antisyphilitic treatment and see whether her condition would not be improved thereby.

THE DIRECT TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

Dr. Homer Swift and Dr. A. Ellis, of the Rockefeller Institute Hospital, presented a paper on this subject, in which they stated that syphilis of the central nervous system was one of the most important manifestations of a chronic infectious disease. The discovery of the treponema pallidum in general paralysis by Noguchi and Moore had enabled us to properly classify this condition, so that parasyphilis to-day must be regarded as active syphilis of the central nervous system. If in any disease we had an etiologic agent present and still active, and if we had specific therapeutic agents to use against the microörganism, it seemed rational to apply the drugs until all evidence of activity of the virus was removed.

Syphilis of the central nervous system was one of the most resistant forms of the disease to treatment. The symptoms were often mechanical, and improved or disappeared when treatment was applied, but the entire eradication of the disease was most difficult. These difficulties were increased by the anatomical peculiarities of the central nervous system. The perineural lymph spaces and the perivascular lymphatics were the sites of the most intense round cell infiltration. These spaces were directly connected with the subarachnoid space. Drugs and antibodies were but little eliminated into the cerebrospinal fluid, so that treatment intravenously only reached the disease on the side of the blood stream. Attempts to introduce salvarsan by means of lumbar puncture had resulted in intense irritation of the meninges in monkeys. Serum was practically the only substance known which it was safe to repeatedly introduce into the subarachnoid space.

It had been shown that the serum of patients who had been treated with salvarsan had a definite effect upon spirochaetal diseases: (*a*) clinically on congenital and secondary syphilis; (*b*) by inhibiting the growth of treponema pallidum in cultures; (*c*) by inhibiting the growth of the spirochaete of relapsing fever in mice; and, (*d*) clinically in central nervous syphilis by introducing serum directly into the subarachnoid space.

The technic employed by Drs. Swift and Ellis was to treat the patient intravenously with salvarsan or neosalvarsan; one hour later withdraw from 40 to 50 c.c. of blood into a sterile centrifuge tube, centrifugalize the blood and separate the serum from the clot. Then 12 c.c. of the serum was diluted with 18 c.c. of normal serum and heated to 56 C. for half an hour. A lumbar puncture was then made and spinal fluid withdrawn until the pressure was reduced to 30 mm. of cerebrospinal fluid. The 40 per cent. serum was then injected by gravity through the lumbar puncture needle.

It was emphasized by the readers of the paper that the intraspinous treatment was not offered as a substitute for other forms of treatment, but as an additional form of treatment to apply in those cases of cerebrospinal syphilis, tabes and perhaps general paralysis where the intravenous treatment alone was not sufficient, or where a rapid therapeutic effect was desired.

Dr. John A. Fordyce, in the discussion of this paper, said that during the past two and a half years he had had considerable experience with salvarsan given intravenously in syphilis of the cerebrospinal system. Although many of the nervous manifestations of syphilis occurred several years after infection, in the great majority of cases, if not in all, involvement of the cerebrospinal system took place during the secondary stage of the disease. It was at this time that there was a generalized dissemination of the spirochetes. Dreyfus had demonstrated that during this stage more than 50 per cent. of cases of syphilis showed some evidence of involvement of the cerebrospinal fluid, frequently without giving rise to symptoms. It was reasonable to assume, therefore, that the infecting agent might remain latent in the cerebrospinal fluid for years, but that under the influence of various contributing factors it might cause, during this stage or later, meningitis, paresis or the complicated clinical picture of cerebrospinal syphilis. During the early experiments with salvarsan as a therapeutic agent, Dr. Fordyce said it was thought that one or two doses of the remedy would be sufficient to control the infection, and, unfortunately, this impression was still held by many practitioners, and fostered the belief that salvarsan was not effective in the treatment of syphilitic conditions of the cerebrospinal system. As a matter of fact, we now know that many of these cases were aggravated by one or two doses, while, on the other hand, many of their symptoms were relieved by the persistent use of the drug. It was a common experience with him to see an aggravation of the tabetic symptoms produced by one or two doses of the drug, but by persistence in its administration, the pains, crises, bladder symptoms and general nutrition of the patients were greatly benefited. The speaker said that his plan of treatment in these cases was to give injections of salvarsan at weekly intervals, combining them with mercury at intervals of three or four days. In one case he gave twenty-one injections of salvarsan, about ten grams in all, with marked alleviation of the symptoms in a patient who had come to him with the diagnosis of paresis. The Wassermann reaction in this case had not been influenced by the treatment, and his cerebrospinal fluid at the last examination contained ninety cells, with a positive Wassermann and globulin reaction. This was a case where the intraspinous method of Dr. Swift might prove of distinct benefit. Dr. Fordyce said he was becoming more and more convinced that salvarsan had no deleterious effect on the optic nerve: on the contrary, he now had two cases under his observation where it had proven distinctly beneficial.

Dr. Sachs said he would hail with great satisfaction any method that would render the treatment of syphilitic diseases of the cerebrospinal system more successful than it had been heretofore. The theory upon which this method was based was surely a plausible one, and appeared to exert a direct effect on the syphilitic process in the central nervous system. While he was glad to have the assurance of Dr. Fordyce that we had given the salvarsan altogether too infrequently and in too small dosage, still a word of caution was in order lest we should go from one extreme to the other. Women, apparently, did not tolerate as large a dose as men.

COMMUNICATIONS

SOAP AS AN ANTISEPTIC

DEAR DR. WAINWRIGHT:

An extract (page 451 *American Practitioner*) with the above title caused me to look up some notes on the subject. You may know that years ago I spent a whole summer (June to November) in experimenting with various technic and methods of hand disinfection. The laboratory of the College of Pharmacy was placed at my disposal through the courtesy of Dr. Smith Ely Jelliffe. I find that one hundred tests were made with the Soda Chlorinated Lime method, and without preliminary washing with soap. Three (Agar agar) tubes grew cultures, and I think by a slight change of manipulation it could be brought up to 100 per cent. negative with proper environment. Also one hundred tests were made with green soap, scrubbing brush, preliminary mechanical cleansing, followed by lime-soda, with seventy-two positives. And one hundred tests, no scrubbing brush, but powdered pumice stone added to green soap, to make it take hold, with fifty-eight positives. Question, why use soap or scrubbing brush? One reason might be given: "Everybody is doing it."

It might be well to add that the soap was always sterile (shown by culture tubes), but it shut the germs up in the skin of the hand, and protected them by a smear which the antiseptic could not or did not penetrate very well. My mental picture of the pores and ducts of a well-soaped, well-scrubbed skin, is a farm hand who once explained to me that he did not "see where the folks got typhoid 'cause he always put carbolic in the paint that he used on the privy." Investigation demonstrated a subsoil connection with the well.

DOUGLAS H. STEWART, M.D.

128 W. 86th Street,
Sept. 26, 1912.

THERAPEUTIC PROGRESS

Salvarsan in Syphilis.—Professor Edward Martin, of the University of Pennsylvania, writing on the treatment of syphilis in the latest volume of Keen's *Surgery*, Vol. VI., p. 111, says: "Salvarsan is indicated in all stages of syphilis. Given in full dosage and repeated in seven days, it produces its maximum safe effect, and if used in the early stage of chancre, seems capable of producing an immediate and permanent cure. The lesions of syphilis yield more promptly to Salvarsan than to mercury, and the Wassermann reaction becomes negative in a larger proportion of cases. It is generally accepted that salvarsan should be supplemented by mercury, the latter being given in doses as large as are compatible with bodily and mental vigor, preservation of appetite and digestion, free elimination, and the holding of the normal weight."

Novocain Anesthesia.—T. Turner Thomas, of the University of Pennsylvania, in discussing local anesthesia for operations in the trigeminus region (Keen's *Surgery*, Vol. VI., p. 416), says: "The anesthetization of large nerve trunks by perineural injection of cocain solution was only possible, or at least only practicable, on parts of the body on which the Esmarch constriction bandage could be applied. The addition of adrenalin to the cocain solution has made the method applicable to other parts of the body. The substitution of novocain for cocain permits the employment, without danger, of a much larger quantity of the anesthetic in the neighborhood of a nerve trunk or to interrupt the conduction of a nerve for a much longer time."

Neosalvarsan.—Lier, *Wiener Klinische Wochenschrift*, March 6, 1913; *N. Y. Medical Journal*, April 26, 1913, says that in consequence of its ready solubility with neutral reaction, neosalvarsan is very convenient to use, and that it produces its best effect in cases of primary and tertiary syphilis, as well as in the infectious, moist forms of the secondary period. In primary syphilis the outlook for a true abortive cure through neosalvarsan appears to be very favorable. It renders good service also in malignant, ulcerous syphilis, though only in large doses frequently repeated, while in the dry forms its effect is inferior to that of mercury. It should always be given in conjunction with the latter. Neosalvarsan is particularly indicated in those cases in which severe stomatitis or irritation of the kidneys is produced by mercury, as the treatment need not then be interrupted. He considers the intramuscular injection preferable. It is little, if at all, painful, leaves no infiltrate, and may be given to ambulatory patients.

Colloidal Silver in Pneumonia.—Netter, *Presse Médicale*, reports employment of this agent in pediatric practice in all varieties of the infection. He found a 15 per cent. ointment efficacious in labor and bronchopneumonia. The site of application should be previously well rubbed with a brush. In bronchopneumonia, injections of a 0.25 per cent. collargol were used, while in serious cases as much as 1, 2 or even 5 per cent. was given intravenously. He claims that pneumonia can sometimes be arrested on the third day by this measure.

Atophan.—Kahle, at the Fifteenth Annual Meeting of the American Gastro-Enterological Association, June 3, 1912, *Boston Medical and Surgical Journal,* May 1, 1913, reports on the clinical experiments in the use of atophan in forty cases of abnormal uric acid metabolism associated with gastrointestinal diseases. He believes that atophan is a very valuable therapeutic agent, more effective and free from objectionable features than preparations usually employed for such purposes.

Pituitrin in Labor.—Gussew, *Dominion Medical,* reports the use of pituitrin in forty-six cases of labor, 0.75 c.c., containing 0.2 c.c. of a 20 per cent. extract of the posterior lobe of the hypophysis, was used in all but three cases, when 1 c.c. was used. The smaller dose seemed to work more satisfactorily, the labor pains beginning some ten minutes after the injection. He considers pituitrin a valuable and reliable agent during labor and afterwards. Chloroform inhalations or hypodermic injections of morphine interfere with the action of the pituitrin.

Amphotropin.—Eugene Remete, *Poster Med. Chir. Presse,* 1912, No. 11, says that Amphotropin reduces abnormal micturition in subacute and chronic conditions, increases diuresis, particularly in pyelitis and pyelonephritis, removes sloughing epithelium, increases urinary acid reaction, has a solvent action on uric acid and kills species of bacteria, against which other urinary disinfectants are helpless.

Melubrin.—Muller, of the Deaconess Hospital, Halle (*Vienna Klin. Woch.,* 1912, No. 25), remarks on the particular value of Melubrin in acute and chronic rheumatic polyarthritis. He also commends it as an antipyretic, especially in pneumonia and sciatica, as its use is not attended with disagreeable itching and perspiration, caused by other antipyretics.

Sajodin in Arteriosclerosis.—A. Frankel, *Eulenburg's Encyklop. d. ges Heilk,* states that in general sajodin disturbs the stomach less than the iodides, and, further, does not cause iodism so frequently. The dose is from 0.5 to 1.0 gram (7½ to 15 grains) daily.

Neosalvarsan Ointment in the Treatment of Chancre.—Levy-Bing recommends an ointment containing 10 per cent. of neosalvarsan in vaseline for the treatment of chancre. Applications are made daily after cleansing with boiled water. He reports a quick cure by this method.

Salmofer.—Rosenbaum, *Medizinische Klinik,* February 9, 1913, writes concerning salmofer, an absorbable skin cream, said to contain 15 per cent. of sodium chloride as a local treatment for rheumatic and neuralgic conditions. The preparation is to be applied with friction to the affected parts once or twice daily. It does not produce irritation of the skin.

Gadiol.—Bruck, *Medizinische Klinik,* February 16, 1913, discusses gadiol, a new cod liver oil preparation, and declares it to be a new and valuable agent, which is readily taken, well borne, particularly well suited for cases of rachitis. It contains the oil unchanged, with greater digestibility due to the addition of ethereal oils. These also prevent disintegration and guarantee permanence during the warm weather. It should, however, be kept in a cool, dark place.

BOOK REVIEWS

Epidemic Cerebrospinal Meningitis. By ABRAHAM SOPHIAN, M.D., formerly with New York Research Laboratory. Twenty-three Illustrations. St. Louis: C. V. Mosby Company, 1913.

This monograph is said to be the only one as yet published in English on cerebrospinal meningitis. As it covers the present knowledge of this dread complaint, laboratory, surgical and clinical, including etiology, symptomatology, diagnoses, complications, blood pressure and treatment by one who has had both laboratory and bedside experience under ideal conditions, it would seem that the work will of necessity be authoritative.

Pye's Surgical Handicraft. A Manual of Surgical Manipulations, Minor Surgery and Other Matters Connected with the Work of the House Surgeons and Surgical Dressers. Edited and largely rewritten by W. H. CLAYTON-GREENE, B.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.), Surgeon to St. Mary's Hospital, etc., London. Sixth Edition. New York: E. B. Treat & Co., 1912.

This work of 600 pages covers the minor and some major surgical procedures which come to the physician and surgeon. It covers so wide a range of work that it would be impossible even to mention the subjects. Suffice it, therefore, that whatever of emergency or minor surgery, its technic that will come to the physician will be found included. It is an excellent work for study and reference.

Transactions of the College of Physicians of Philadelphia. Third Series. Vol. XXXIV., 1912.

This handsomely printed and bound volume contains a list of Fellows of the College, with hospital connections, addresses and original scientific articles on various diseased conditions, all of which are not only interesting, but of value to medical science. We do not know that these articles have appeared, but regard it unfortunate if they are to be consulted or read only in a volume of transactions which of necessity is limited in circulation. Here are articles of G. E. de Schweinitz, George Fetlerolf and George W. Norris, James W. Anders, S. Weir Mitchell, H. A. Hare, Charles K. Mills, John B. Deaver and other no lesser lights, all of which could be read with profit by medical men.

The Blood. A Guide to Its Examination and to the Diagnosis and Treatment of Its Diseases. By G. LOVELL GULLAND, M.A., B.Sc., M.D., etc., Physician to the Royal Infirmary and to the Royal Victoria Hospital for Consumption, etc., Edinburgh, and ALEXANDER GOODALL, M.D., F.R.C.P.E., Lecturer on Physiology and on Practical Medicine at Surgeons' Hall, etc., Edinburgh. With 16 Text Illustrations and 16 Colored Plates. New York: E. B. Treat & Co., 1912.

As stated in the title, this work is one on diagnosis and treatment of diseases of the blood. It is well written, and we think covers the whole subject from the withdrawal of the blood from the subject or patient through complete microscopical examination in various blood diseases. It will be found illuminative and satisfying.

The Diagnosis of Nervous Diseases. By PURVES STEWART, M.A., M.D. (Edin.), F.R.C.P., Physician to Outpatients, Westminster Hospital, Physician to the West End Hospital for Nervous Diseases, and to the Royal Orthopedic Hospital. Third Edition, Revised and Enlarged. New York: E. B. Treat & Company, 1912.

The author declares in his preface that it is seldom in practice that we meet with diseases in their fully developed, so called "typical" forms; more often we have to deal with patients who exhibit signs and symptoms common to several diseases, all of which is too true. The book treats mainly of diagnosis and follows in a sequence which is not only convenient for study, but one which will save cross references. The present volume is revised throughout, profusely illustrated and should prove a valuable text book, as well as book of references.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. Thirty-first Year. New York: E. B. Treat & Company, 1913.

A book to appear annually for thirty-one years must be familiar to those for whom it has been prepared. This is particularly true of the *International Medical Annual.* It therefore remains only for the reviewer to call attention to features of more than special interest in the 1913 edition. These may be said to be the Dictionary of Remedies, Review of Medical and Surgical Progress for 1912, Anesthetics, Cancer and Tuberculosis. The General Review of Salvarsan and Surgery of the Thyroid will also be found complete, as will, indeed, the other features discussed. A Glossary of New Terms is included. The illustrations and plates are exceptionally good; while the paper, type and binding are all that could be desired.

Private Duty Nursing. By KATHARINE DE WITT, R.N.. Graduate of Mount Holyoke Seminary and of the Illinois Training School for Nurses; Assistant Editor of the American Journal of Nursing. Philadelphia and London: J. B. Lippincott Company, 1913.

The authoress of this work wisely states in her preface that private duty nursing is one of the most important and interesting branches of nursing work. It is true that the nurse in hospital work is an educator and administrator; while in private nursing she is educator to the family, and often has the entire guidance of the household: is a missionary. If she is qualified for her duties she can do much in teaching and giving examples in right living, hygiene and sanitation. All of the questions of private duty nursing are here dwelt upon. It will be a great aid to such nurses, and if the suggestions and rules are conscientiously followed will do much to do away with the friction or distrust manifested of late toward private duty nurses.

PAMPHLETS AND REPRINTS

SEPTIC SORE THROAT: A MILK BORNE OUTBREAK IN BALTIMORE, MD. EPIDEMIOLOGICAL STUDY OF THE OUTBREAK. By WADE H. FROST, Passed Asst. Surgeon, United States Public Health Service.

FROM PARKE, DAVIS & CO., DETROIT, MICH. SYMPOSIUM ON THE USE OF PHYLACOGENS (MODIFIED BACTERIAL DERIVATIONS) COLLEGE OF PHYSICIANS, PITTSBURGH, PA. SESSION OF APRIL 25, 1912.

FROM H. K. MULFORD COMPANY, PHILADELPHIA, PA. MULFORD'S VETERINARY BULLETIN, JANUARY 1913.

PROCEEDINGS OF THE SIXTH ANNUAL MEETING OF THE ASSOCIATION OF LIFE INSURANCE PRESIDENTS. Held in the Hotel Astor, New York, December 5-6, 1912.

THE POST-MORTEM DIAGNOSIS OF PLAGUE. By RUPERT BLUE, Surgeon General United States Public Health Service. Government Printing Office, Washington, 1912.

ACTIVE AND PASSIVE IMMUNIZATION AGAINST PLAGUE. By WADE N. FROST, Passed Asst. Surgeon United States Public Health Service. Government Printing Office, Washington, D. C.

TRACHOMA IN KENTUCKY. Reports of Investigations into the Prevalence of Trachoma in the Mountains of Eastern Kentucky. By JOHN MCMULLEN, Passed Asst. Surgeon, United States Public Health Service. Washington, 1912.

THE SAUNDERS CATALOGUE. W. B. Saunders Company, publishers, of Philadelphia and London, have issued the 17th edition of their handsome illustrated catalogue. It describes nine new books and ten new editions, not mentioned in the previous issue. These new books are of great interest to the medical man. Any physician can get a copy of the catalogue by dropping a line to the publishers. It is most valuable as a reference work of modern medical literature.

The American Practitioner

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ORIGINAL ARTICLES

ACUTE ANTERIOR POLIOMYELITIS

By LEONARD W. ELY, M.D., Denver, Col.

Synonyms: Infantile Paralysis, Acute Atrophic Paralysis, Acute Poliomyelitis, etc.

Definition: "An acute, probably specific, febrile illness affecting children and young adults, characterized anatomically by a confluent or discrete inflammation of the gray matter of the spinal cord and brain stem, with resulting destruction of the nerve cells and consequent degeneration of their axiscylinder processes and atrophy of the muscles, and clinically by a rapid atrophic paralysis of various skeletal muscles, usually those of the limbs, but occasionally also those of the head and trunk, a paralysis which reaches its maximum in a few hours and tends towards recovery in some parts and to the production of permanent disabilities and deformities in others."*

Occurrence: Although poliomyelitis is essentially a disease of childhood, adults are occasionally affected. It occurs with greatest frequency during the hot summer months, and shows at times a marked epidemic characteristic. At times it occurs sporadically. Both sexes appear to be affected with about equal frequency.

Cause: The recent researches of Landsteiner and Popper,† of Flexner and Lewis,‡ and of Osgood and Lucas,§ have shown the infectious nature of the disease, though the specific germ has not yet been isolated. Vipond ‖ finds that a large proportion of the cases give the Widal reaction, and he believes that the disease is analogous to typhoid.

Morbid Anatomy: It is not necessary to set forth all the pathologic changes of the disease; they are mentioned in brief in the definition. The meninges are congested and often hemorrhagic. The brunt of the attack is borne largely by the groups of cells in the anterior gray horns of the spinal cord. As a result of the inflammation in their neighborhood these cells degenerate and atrophy. The anterior horn shrinks, and, to a lesser extent, the anterior and anterolateral columns.

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*Osler's Modern Medicine, 1910.

†Landsteiner & Popper, Zeitsch. d. Immunitatsfor. Orig., 1900, No. 11, 377.

‡Flexner & Lewis, Journal of the A. M. A., Nov. 13, 1909.

§Osgood & Lucas, Journal of the A. M. A., Feb. 18, 1911.

‖Vipond, British Medical Journal, March 18, 1911.

In consequence of this degeneration in the cord, the motor fibers of the nerves arising from the affected segment also degenerate and atrophy, and cause a degeneration and atrophy of the muscles which they supply. The muscles are said to become little more than fibrous bands with more or less fatty tissue, and are pale in color.

Symptomatology: The disease as a rule begins *suddenly*. The patient, apparently in perfect health, is seized with a high fever (100° to 104 F.°) accompanied usually by vomiting, and by constipation or diarrhea. Convulsions may or may not be present. The child may cry with pain. As the constitutional symptoms subside in a day or two, the mother notices that the child is unable to move its limbs, and an examination reveals a paralysis of them more or less complete. This paralysis gradually disappears to a greater or less extent, leaving one or more muscles of one leg permanently damaged.

This is a typical picture, but it has many variations. Constitutional symptoms may be absent, and the child may awake in the morning paralyzed. Both legs may be finally affected to a greater or less extent, and the muscles of the arms and trunk may also be involved. Sometimes the paralysis mounts high enough to affect the muscles of respiration and deglutition, and the child may die in a day or two. The head may be drawn back, justifying a suspicion of meningitis.

The wasting of the paralyzed muscles will be early apparent, and examination shows the reaction of degeneration. The knee jerks as a rule are absent, though in children this is not especially significant. Cutaneous sensibility is not much affected, and pain is not present after the first week or so.

Improvement of the paralysis begins, as has been said, after the first few days and goes rapidly forward, up to a certain point. Two or three weeks after the onset, the limbs which are not to be permanently affected have practically recovered their normal state. Improvement in the affected limb from now on is very slow, but usually progressive for a year or more, and not until the end of this time can one say just how extensive the paralysis will be.

The muscles most frequently involved are the dorsal flexors of the leg, the calf muscles and the *quadriceps extensor* group.

The *diagnosis* is made on the acute onset, with the early appearance of flaccid paralysis. The disease has been mistaken for scurvy, but here as a rule we meet with exquisite sensitiveness of one or two joints, possibly with bleeding gums. The administration of fruit juice will remove all doubt.

In meningitis the flaccid paralyses are absent.

The *prognosis* in all cases should be guarded. Recent observers have demonstrated that the disease is much more often fatal than was formerly thought. If the muscles of the trunk be affected the prognosis is doubly grave. The parents should be told that a certain amount of residual paralysis is to be expected.

Treatment: As the pathological lesion is an acute inflammation of the spinal cord, it follows that rest is the first indication, in order to prevent as far as possible the functionating of the spinal cells. To prevent congestion it is well to change the child's position from time to time. All massage, electricity, stimulating drugs or douches, etc., are absolutely harmful in this stage. The paralyzed limbs should be supported by splints to guard against subsequent contractures. The knees and thighs should be kept in extension, the ankles at right-angled flexion.

Hexamethylenamin has been recommended for a certain germicidal effect, and as it can be recovered from the spinal fluid of patients to whom it has been administered, its use seems rational, though the inflammation is in the cord rather than in the meninges.

As the disease is considered distinctly though mildly contagious, those suffering from it should be isolated, and the quarantine should be maintained for some time. Special attention should be given to keeping the mouth and nose clean by frequent spraying, as this is apparently the chief portal of entry for the organism, at least in the experimental cases.

LATER STAGES

When the disease has run its course it almost invariably leaves behind it permanent damage of the spinal cord. The clinical picture is varied, according to the identity of the paralyzed muscles, but it possesses certain peculiar features.

The affected muscles may be completely paralyzed or only paretic. They are shrunken, flabby, have lost their reflexes, and show the reaction of degeneration. The extremity is cooler than normal, pale, or if exposed to the cold, bluish-red and congested. Cutaneous sensibility is not affected. The simplest way to demonstrate the paralysis is to ask the child to put its joints through their accustomed motions, one by one. If the child be very young, the movements may be brought out by pricking the extremity lightly at different points with a pin. First the leg* is held and the foot is pricked underneath, outside and inside. If the anterior leg group (peroneals and anterior tibial) is paralyzed, active dorsal flexion is impossible. If the tibialis anticus alone is paralyzed, the foot will be dorsiflexed in abduction, if the peroneals, it will be dorsiflexed in adduction. A normal foot can be *passively* dorsiflexed slightly beyond a right angle. If the calf muscles are paralyzed, the foot can be pushed up until it touches the front of the leg.

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*When we speak of the leg we refer to that portion of the lower extremity between the knee and ankle

To test the anterior thigh muscles one holds the thigh at right angles to the body, and pricks the posterior surface of the heel. All these tests are made while the child lies on its back.

With involvement of the muscles of the leg, the patient limps, or, if the involvement is very extensive, he waddles or is totally unable to stand or walk.

When the back muscles are affected the child may not be able to sit or to stand. If those on one side suffer, a severe lateral curvature may develop. If the belly muscles are affected the abdomen protrudes, and the child cannot raise himself from the supine posture, but if passively raised and pushed forward beyond the perpendicular, he can maintain himself in that attitude. The paralyses in the arms, forearms, and hands are easily demonstrated.

The reaction of degeneration may always be demonstrated in the affected muscles, but it is not of great practical importance.

The knee jerk is usually absent in the affected leg, a physical sign of great weight in the diagnosis, particularly in adults.

DEFORMITIES

The deformities following poliomyelitis have three elements in their causation, namely, that which is due to retardation of growth and shrinking of the limb, that due to gravity, and that due to the pull of the sound muscles antagonistic to the paralyzed ones. The last element is by far the most important. The sound muscles, unopposed in their action, gradually become set in their contracted position, and by their pull hold the limb in one fixed attitude—flexion, extension, abduction or adduction, as the case may be. This fixed faulty position is called a *contracture.*

TREATMENT OF RESIDUAL PARALYSIS

All treatment is palliative, adjuvant, or substitutory. The paralysis is due, as we have seen, to a destruction of cells in the spinal cord and to a resulting degeneration of their processes. No therapeutic measures can ever restore these. The main objects must, therefore, be to promote nutrition in the paralyzed limb, to prevent deformity (and to correct it if already present) and by apparatus and other means to support the limb so that it can functionate in the best possible manner.

PROMOTION OF NUTRITION

Many times each day the joints of the affected extremity should be put through their entire range of motion. This may be done by hand or by means of the Zander mechanotherapy. The patient should be encouraged to exert as much power as possible, and his will should be educated to move his own muscles, if he can do so. This muscle training can often be done best when the patient is in a warm bath.

Persistent and regular massage is most important. In the absence of a skilled masseuse the parents should be instructed in the rudiments of massage. Electricity is not of much service. It is useless to stimulate a muscle whose nerve cells in the spinal cord are destroyed.

PREVENTION OF DEFORMITY, AND SUPPORT

Passive Motion and Massage

These have already been discussed. Often, if they be faithfully carried out, and if the nerve destruction be not too extensive, they will suffice to prevent deformity. If deformity can be prevented until the child reach his growth, contractures thereafter will not be as troublesome. Too much, however, must not be expected of these means. The patient must be carefully watched, and, if deformity occur, resort must be had to other measures.

Braces

These will form the main reliance in the great majority of cases of paralysis of the lower extremity. They are invaluable if correctly applied, but worse than useless otherwise. To send a patient to a bracemaker with instructions to have a brace applied is a grave error. If one be absolutely unaccustomed to this work one may possibly trust a bracemaker's opinion as to whether a brace fits or not, but even this is not necessary if one take a cast of the limb and have the brace made over this. To plan a correct brace, and to oversee its application needs a little thought, and possibly some ingenuity, though very little of the latter if one will observe a few simple rules.

Rule 1. The identity of the paralyzed muscles, and their exact function should be known.

Rule 2. All deformity must be corrected before a brace is applied.

Rule 3. The brace must be as light as possible, but strong enough to stand the strain to which it will be exposed. Simplicity is an important attribute of a brace.

Rule 4. The brace must hold the part firmly but not tightly enough to cause pain.

Rule 5. All apparatus must be comfortable.

Rule 6. The range of motion allowed at any joint is determined by the extent of paralysis of the muscles moving the joint. If the paralysis be complete or almost complete, the apparatus must be made without a joint. Motion is to be generally permitted in the direction of the pull of the paralyzed muscles, but not in the direction of that of the sound ones. Thus, if the anterior leg muscles are paralyzed, we allow dorsal flexion of the foot to any degree, but restrict plantar flexion beyond a right angle. This prevents the strong calf muscles from pulling the foot out of shape.

If one has a skilled and trained bracemaker at one's call, the task of procuring a brace is easy, if not, one has a choice of two courses, either to send the measurements and directions to a distant bracemaker, or better still, to have the work done by the local blacksmith and harnessmaker. In either case a cast of the limb should be furnished, and the location of the joints should be marked upon it.

Let us take for an illustration a paralysis of the peroneals. Obviously the joint that needs support is the ankle, and the brace will consist of two parts, a leg support and a foot support. The tendency is to a deformity in equinovarus. We wish, therefore, to prevent adduction and plantar flexion. The brace is made of two steel uprights, jointed at the ankle, of a flat steel foot plate, and of a molded leather heel piece to receive the heel of the patient. The foot is strapped into this by strips of soft leather, which attach to the rear of the sole plate, and are laced over the dorsum of the foot. Three measurements are necessary, *i.e.,* the length of the leg, the length of the foot, and the circumference of the calf. The length of the brace is the distance from a point just below the head of the fibula to the sole of the foot. The length of the foot plate is the length of the foot. The ankle joint in young children is almost invariably put one and a half inches above the sole plate, in older children and in adolescents, two inches.

To prevent plantar flexion beyond a right angle we put a "catch" at the ankle joint of the brace. To prevent adduction of the foot we strap the ankle to the inner bar of the brace.

If the anterior tibial muscles were paralyzed we should strap the ankle to the outer upright to prevent abduction of the foot. In this form of paralysis a Whitman flatfoot brace is often all that is necessary.

If the calf muscles are paralyzed, we plan the brace to prevent dorsal flexion of the foot.

If the thigh or hip muscles are paralyzed, we order a brace that reaches from a point just below the anterior superior spine to the sole of the foot. At its top it has a band encircling the pelvis. The measurement of this band should be the circumference of the pelvis, plus two or three inches. The joint for the hip is usually placed about two inches below the pelvic band. If the *quadriceps extensor* muscle is intact or possesses a fair amount of power we permit motion at the knee, but not otherwise.

Braces are usually made of flattened steel rods, and are provided with leather-covered broad bands of steel to receive the thigh and calf. These bands of steel are continuous in front with bands of leather, which lace or buckle over the front of the limb to hold it in place.

Treatment by apparatus and by manipulation is the usual routine method, especially in young children. We may think well to continue it to adult life, to the exclusion of all other treatment.

As has been said, any existing deformity should be corrected before apparatus is applied. The correction consists in overcoming the resistance of contracted tissues, in restoring to a joint its normal range of motion, and in reducing any subluxations. The manipulation should be made under complete anesthesia. We may be compelled to use the knife to divide the contracted tissues, subcutaneously or otherwise, or we may stretch them by the use of manual force. The latter is preferable where it can be done; and is almost invariably possible in younger children.

The most frequent deformities to be overcome are *talipes equinovarus* (foot dropped inward—paralysis of the peroneal muscles), *talipes equinovalgus* (foot dropped outward—paralysis of the anterior tibial muscle), *talipes calcaneus*, or *calcaneocavus* (paralysis of the calf), flexion of the knee (paralysis of the *quadriceps extensor*), and flexion and abduction of the thigh (paralysis of various muscles about the hip).

Talipes Equinovarus

Holding the leg in complete extension, the foot is brought over into a valgus attitude (abduction, eversion) and is then repeatedly and forcibly flexed dorsally, against the action of the contracted calf muscles. The maneuver is continued until the foot can be brought up beyond a right angle without the application of force. Then a thin piece of board (cigar box) cut out to fit the shape of the foot, is strapped to the sole. The foot and ankle are well padded with cotton batting, the leg is lightly padded, and a gauze bandage is applied over the dressing. While the foot is held in the over-corrected attitude by an assistant, one finishes the dressing with a plaster bandage. Mr. Robert Jones resorts to excision for diamond-shaped piece of skin over the flexure of the ankle joint, the long diameter of the diamond being parallel with the long axis of the tibia. He then sews up the edges of the diamond-shaped place from which the skin was incised by approximating the points of the diamond furthest removed from each other. This holds the foot in a better attitude, and is suitable in cases where the paralysis is not complete.

If the calf muscles cannot be manually stretched, one inserts a slender tenotome beneath the skin about one inch above the insertion of the *tendo Achillis,* and divides the tendon, while the assistant puts it on the stretch by forcible dorsal flexion of the foot. The posterior tibial artery must be remembered. A small sterile dressing is applied over the incision, and then the dressing is completed as described.

Talipes Equinovalgus

This operation is the same as that for talipes equinovarus, except that the foot is put up in a position of extreme varus, and, of course, in extreme dorsal flexion.

Talipes Calcaneus, or Calcaneocavus

The plantar fascia is to be manually stretched if possible, if not, then it may be divided subcutaneously by small cuts of the tenotome. The dorsal flexors may also need stretching.

Flexion of the Knee

The sound ham string muscles here are the cause of the deformity. In stretching them one must be careful not to lever the head of the tibia backward, and so produce a subluxation. If it be necessary to divide these tendons, the operation should not be done subcutaneously for fear of dividing nerves—the peroneal nerve is especially liable to injury in division of the outer ham string. The tendons should be brought to view through a small incision before division. When the deformity has been corrected, the knee and leg must be well padded and the entire limb encased in plaster in full extension. If much flexion has been present, the circulation in the leg is to be carefully watched, and if it is impeded, by reason of stretching the popliteal vessels, the plaster must be immediately removed and the joint must be put up in a modified position. Full extension may be secured two or three weeks later.

Flexion of the Thigh

In paralysis of the muscles about the hip joint the *tensor vaginae femoris* usually escapes, and its resulting contraction causes flexion and abduction of the thigh. This muscle can be stretched under ether, or it may be divided near its origin from the anterior superior spine. The thigh is thereafter held by a plaster spica in the improved attitude.

The most common error in these cases is to regard the treatment as ended after the operation has been performed. If nothing further be done after the deformity has been reduced, it will certainly return, except in the rare cases where muscles, formerly paralyzed, have regained their power. After the deformity has been corrected, the limb must be held in the corrected (or over corrected) posture for at least six weeks, and a brace or other retentive apparatus must be worn for a long time thereafter.

The treatment of deformities resulting from paralysis of the muscles of the trunk consists in the application of jackets or braces to correct whatever deformity is present and to prevent its increase. When a jacket is to be applied, the patient should be strung up and should be held in the best possible attitude.

Brace treatment is not of much use in the paralyses of the upper extremity.

Other Methods of Treatment

Various methods of treatment have been devised to supplant the treatment by apparatus, and good results have been obtained with some of them. None should be practised on very young children, and before any of them are used, the deformity should be thoroughly reduced as described above.

Tendon Transference

This operation consists in substituting the tendon of a sound muscle, or a portion of the tendon, for the tendon of a paralyzed one, and in some instances, though not in all, it has given excellent results. Since its introduction by Nicoladoni it has been through the usual phases of good repute and bad, but with its various improvements and modifications it appears now to be on a fairly firm footing. Tendon transference may be mediate or immediate. In the former, the substituting tendon is lengthened by the use of strands of silk, linen, or similar material, and these strands are inserted at the point of insertion of the paralyzed tendon or near it. In immediate transference the tendon of the substituting muscle is attached directly.

Experience has developed a technic of operating, and has pointed out certain pitfalls which must be avoided.

In the first place, all deformity in the limb must be thoroughly corrected, preferably at a previous sitting, and when the substituting tendon is attached, there must be no undue tension upon it.

The substituting tendon must be attached to the periosteum, or must be run through a hole drilled in bone. It must never be attached to the tendon of the paralyzed muscle.

The tendon must run fairly straight from the muscle to the point of attachment. It may be freed up to its origin in the muscle, but its nutrition must be preserved.

An unimportant tendon may be substituted for an important tendon, but not *vice versa*. Thus the tendon of the *extensor longus hallucis* may be substituted for that of the *tibialis anticus*, but not the reverse.

As a general rule it is poor policy to split a tendon.

Great care must be exercised to prevent adhesions of the transplanted tendon in its new location. Lange runs the tendon through the subcutaneous tissue. Biesalski runs it through the tendon sheath of the paralyzed muscle.

Plaster of Paris should be worn for about six weeks after the operation, and a brace for several months thereafter (from six months to a year). No strain must be put upon the tendon for a long period.

Strict asepsis is absolutely necessary. An Esmarch bandage is advisable for the operation.

Massage, passive motion and muscle training are helpful after the plaster of Paris has been removed.

The operation is of use in the lower extremity and sometimes about the shoulder, but never in the hand.

Technic

An incision is made over the insertion of the tendon to be transferred, the tendon is divided, and its end is secured by a piece of stout silk. The tendon is then dissected up as far as necessary. Through an incision at about the site of the new insertion, one passes a pair of dressing forceps, and, pushing them in the subcutaneous tissue, up to the muscular portion of the substituting tendon, grasps the silk attached to the tendon, pulls it down, and sews the tendon firmly to the periosteum at its new point of insertion, which should be as far forward on the tarsus as possible, and on the inner or the outer side of the foot, according as we wish to obtain inversion or eversion; or one drills a hole through the bone, and passing the tendon through this, makes it fast. The tendon should hold the member in its corrected position firmly, without slack, and without undue tension. The wound is then sewn up, a dressing is applied, and the limb is put up in the corrected position in plaster of Paris. If the transferred tendon is too short it may be lengthened by strands of silk. These strands must be carefully sewn (quilted) into the tendon so that they do not pull out. It has been found that this silk is never absorbed, but is encased by a rope of fibrous tissue that eventually adds strength and stability to it.

Silk is the material generally used for attaching the tendon to the periosteum, and great care must be observed in its preparation. It should be boiled for an hour in a 1-1000 solution of corrosive sublimate, and then should be laid in a sterile towel and dried for 24 to 48 hours. The operation is finished by boiling again in paraffin over a water-bath for an hour. When the silk is to be used the paraffin may be melted.

Infection of the sutures is less likely to occur if the skin incision be not directly over the point of attachment of the tendon, but a little to one side of it.

Special Forms of Operating

In paralysis of the *tibialis anticus* one generally substitutes the *extensor longus hallucis*, in paralysis of the peroneals, a portion of the long common extensor of the toes.

In paralysis of the calf muscles we have before us a most refractory and difficult deformity. No tendons which we can transplant will alone serve to retain the foot in its proper position. Whitman's operation is probably the best in this case.*

The incision starts from a point one inch above the external malleolus and midway between it and the *tendo Achillis*, passes downward to the attachment of this tendon, forward below the malleolus, and over the dorsum of the foot to the head of the talus. The sheaths of the peronei are opened, and the tendons and the external lateral ligament are divided. One then removes the talus and denudes the sides of the calcaneus and cuboid bones, and the inner aspect of the external malleolus. Through an incision on the inner side of the ankle the internal lateral ligament is divided, and the external aspect of the internal malleolus is denuded.

The peroneal tendons, passed through a slit in the *tendo Achillis* close to its insertion, are sewn to this tendon and to the periosteum, the Esmarch bandage is removed, the bleeding is checked, the wound sewn up, the foot is subluxated backward, a voluminous gauze dressing is applied, and then a plaster of Paris dressing, while the foot is held carefully in its new position of backward subluxation and slight plantar flexion. While an assistant holds the leg in flexion the plaster dressing is continued upward to include the thigh. Whitman recommends that the limb be suspended for several days thereafter.

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*American Journal of Orthopedic Surgery, Vol. VIII, p. 137, 1910. Annals of Surgery, Feb., 1908.

Robert Jones has also devised a very ingenious operation for this troublesome deformity.* His procedure is accomplished in two stages, first correcting the cavus, which almost invariably accompanies the *talipes calcaneus,* and second the calcaneus portion itself. Following is his description:

"Stage I. Divide the plantar fascia if contracted, and wrench with hand or instrument.

"Make an incision down to the bone about three inches in length on the inner side of the foot; the center of the incision being opposite the angle of convexity.

"With periosteum elevator separate the soft structures from the tarsus above and below from the inner to the outer side.

"Remove a transtarsal V-shaped section of bone. If there be valgoid deformity, let the section be wider on the inner than on the outer side. Suture, and obliterate the cavus deformity by extending the foot, which is now bandaged to the tibia, the calcaneus deformity being apparently much increased.

"Stage II (four weeks later).

"Make a longitudinal incision at back of heel, opposite the ankle joint. Open the joint and take a wedge from the astragalus, sufficiently large to be accurately obliterated when the foot is brought to right angles. Denude tibia and fibula of cartilage.

"The foot should be brought to right angles and fixed immovably until union is complete."

In paralysis of the *quadriceps extensor cruris* the *sartorius,* or one of the other internal ham string muscles, or possibly the *tensor vaginae femoris* may be substituted.

In the upper extremity the operation has been done in several instances of paralysis of the deltoid, using the trapezius as the substituting muscle. It is probably better, having severed the muscle at its insertion, to quilt silk into its substance and use this as the tendon, rather than to attach the trapezius directly to the paralyzed deltoid.†

"Silk Ligaments"

The use of silk strands to prevent deformity has found favor, especially in cases of paralysis of the anterior leg muscles—the dorsal flexors of the foot. The silk, carefully prepared as outlined above, remains in the tissues, and eventually becomes embedded in fibrous tissue.

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*Amer. Jour. of Orthop. Surgery, April, 1908.

†Bradford, Amer. Jour. of Orthop. Surgery, Vol. 8, p. 21; Kiliani, Annals of Surgery, Jan., 1910; Katzenstein, Berlin Klin. Wochenschr., Dec. 6, 1909; Lewis, Jour. A. M. A., Dec. 14, 1910.

One slits the periosteum over the tibia longitudinally, beginning at a point two or three inches above the ankle joint, and continuing the incision upwards for two or three inches. One then "bastes" the edges of this slit with the silk, beginning below, running up one side of the incision in the periosteum, crossing over above, and coming down on the other side. This leaves the two ends of the silk hanging from the lower end of the incision in the periosteum, one on either side. The silk is then threaded into the eye of a director which is pushed down beneath the skin, under the annular ligament, and is brought out through an incision over the dorsum of the foot. If varus deformity be present (paralysis of the peroneals), this incision is made over the outer side of the foot, if valgus (paralysis of the *tibialis anticus*), over the inner side. If neither valgus nor varus be present, the incision may be made in the median line, or two incisions may be made, one over the outer aspect, one over the inner. One then removes the silk from the director, threads it into a heavy curved needle, and sews it into the bone at the desired spot, with the foot in the corrected position. The wounds are sewn up, a dressing is applied, and the limb is encased in plaster of Paris. The plaster should be left on for about three months, and when it is removed, a brace should be substituted for about six months longer.

Bartow and Plummer* have proposed a plan of fixation of loose joints by the use of "intramuscular silk ligaments." This promises well in severe cases of paralysis about the knee and ankle, but it is still in the experimental stage.

Nerve Grafting

Theoretically it should be possible to join the paralyzed nerve to a sound one, and thus to secure innervation and recovery of the paralyzed muscle, but in practice the operation has not met with a great degree of success. Possibly the reason for failure is as follows: we are not justified in undertaking any such operation until we have allowed at least six months to pass by in order to be sure of the extent of the final paralysis. By the end of that time the nerve supplying the paralyzed muscle is so badly degenerated that it is not capable of functionating after the sound nerve has been grafted on its peripheral portion.

Arthrodesis

When the muscles about a joint are all paralyzed or nearly all, a condition of flail joint ensues, which renders the limb practically useless, especially if the lesion is of the lower extremity. Under these circumstances it is easily seen that a stiff joint would be desirable, as being of much more service in locomotion. Arthrodesis is the term applied to the operation of removing the joint cartilages and so securing bony union. It is inapplicable in patients under the age of twelve years, for a strong bony union does not result. Possibly it were better postponed until after the fifteenth year.

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*Buffalo Medical Journal, January, 1912

Arthrodesis is a comparatively simple operation. The use of the Esmarch bandage is advisable. One makes an incision usually over the extensor surface of the joint, removes the cartilages, sews up the wound, and puts the limb up in the desired posture in plaster of Paris. The knee should be in full extension, the foot in right angled flexion. When the operation is done upon the foot, it should not end with a stiffening of the ankle joint alone, but at least the talonavicular and calcaneocuboid articulations should be obliterated also.

THE COMPLICATIONS OF CHOLECYSTITIS—THE EXPERIENCE OF THE LAST THREE YEARS*

By Bayard Holmes, M.D., Chicago

In the last three years the literature of cholecystitis has been rewritten. More than five hundred valuable articles and books have appeared during that time upon the subject and its relations. Sixty-three of these books and articles are of such a character that they can be classed only as general treatises. Eightytwo confine themselves largely to operative and technologic aspects, while over two hundred were devoted almost exclusively to various local complications that result from cholecystitis or to remote systemic symptoms. The only parts of the subject which seems to have been neglected are those that might be classed as etiologic, anatomic, pathologic and serologic.

It is only one horizon of this vast contribution to medical science which I shall try to present at this time, but I trust that it will discover to you, as it has to me, the remarkable trend of surgical practice during this brief period. If, therefore, the customary form of my essay, which the title might suggest, is not carried out, you must consider that it is due to my limitations in time, as well as to my inadequate equipment for the task.

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*This paper was read at Monmouth, Ill., April 4, 1913, and an uncorrected copy is in the proceedings published in the *Lancet Clinic,* Cincinnati, Ohio.—B. H.

Cholecystitis is a disease which is limited by its name to the gall bladder, but it must not be for a moment considered that from a clinical standpoint such a limitation prevails. In practically every instance, the disease is initiated by an infection which reaches the gall bladder through the excretory ducts of the liver. The microorganisms of most infectious diseases are eliminated from the circulation by way of the portal vein, the biliary capillaries of the liver, the bile ducts and the common duct. In this way the typhoid bacillus enters the gall bladder in every case of typhoid, and the microorganisms of other septicemias, such as the pneumococcus and the colon bacillus in their several infectious conditions of the blood. Even the tubercle bacillus gains entrance to the gall bladder by the same channels, but it is of little clinical importance.

From this very etiologic fact, it would at once be premised that the biliary conduits of the liver and the common duct itself take part in this infectious process. The anatomy of the gall bladder determines the persistence of the disease in this viscus. The complicated valves of Heister, which are studded with mucous cryptlike glands, retain the infectious material after all trace of the microorganisms has been washed out of other conduits, even from the blind biliary ducts in the capsule of the liver, the round ligament and the under surface of the diaphragm (*vasa aberrantia*).

The continued growth of the microbes in the secretions of the walls of the gall bladder results in a most remarkable change in its mucosa. While only a few mucous glands (six to twenty) are found close to the cystic duct in the healthy gall bladder, in the gall bladder which has long suffered from an inflammatory process, even the fundus itself is thickly studded with mucous glands that penetrate through the muscular layer, and occasionally stand on the outside of the gall bladder as retention cysts.

The muscular and fibrous elements of the gall bladder wall also increase in thickness and complexity, with the result that the muscular tone of the gall bladder is lost, and it becomes physically incompetent.

With this change also the elasticity of the gall bladder is diminished through the process of scar formation, the danger of rupture with each succeeding attack of obstruction of the cystic duct increases and leads at last to this irreparable complication.

The mechanical and local changes in cholecystitis are not the only ones to be considered by the pathologist and clinician. There is a distinct and clinically well recognized toxemia, due to this condition, which has a selective action upon distant organs. Thus the incompetency of the heart due to gall bladder intoxication, and the spasm of the bronchial tubules of the lungs, which is recognized as anaphylactic asthma, are among the many remote but serious effects of a simple cholecystitis.

Infection, mucous adenopathy, calculi, motor insufficiency, new growths, remote toxemias and liability to injury and rupture are among the inevitable consequences of cholecystitis.

Of the something more than five hundred articles on cholecystitis and its complications, which were published during the last three years, those by Haughton, Hay, Hayd, Shober, Jopson, Dever, Garvin, Zenker, Eichmeyer, Glaser, Schnitzler, Capelle, Else, Alsobrock, Kehr, Riedel, Fagge, Finsterer, Feldhahn, Duvergey, Kubig, Marconnet, Schlessinger, each mention complications, some of them unique, and all of them interesting. They extend all the way from pyloric spasm and myocarditis to absolute anuria and general central arteriosclerosis. They include all the results of local peritonitis with defects in the biliary and portal circulation. They manifest all the symptoms of sudden peritonitis, complete gangrene of considerable portions of the small intestine, local abscesses discharging into the lung, into the stomach, into the colon, into the pelvis of the kidney, into the uracus, into a hernal sac, into the rectum, into the urinary bladder, and through the skin.

It would be wholly unnecessary to describe many of these complications, and it would be absolutely impossible to give a full account of even a single one of them. It is therefore my intention to present the outlook which the average practitioner ought to maintain toward this disease.

Appendicitis is not the same to us as it was to our medical ancestors in 1880. At that time the complications of appendicitis were recognized by all, and they were considered the proper subject of surgical treatment, but the primary disease of the appendix was rarely recognized, and the significance of simple appendicitis was absolutely unknown.

It is the same with the complications of gall bladder disease today, and our success in treating these unfortunate events will never reflect credit on our professional proficiency, though it may give opportunity to the surgeon to display his technical resources by daring operations and tragical surgical exploits. However, these complications are of the utmost importance as positive indications for the early surgical treatment of simple cholecystitis, that form of gall bladder disease which Kukula says affects 10 per cent. of the adult inhabitants of Germany, and which Reidel declared in 1888 was wholly beyond the possibility of clinical diagnosis in 90 per cent. of all who actually suffered of it. Now that the relations between pathologic cholecystitis and the expression of the disease in symptoms of diagnostic usefulness is so much better understood, there is no more difficulty in making the diagnosis of cholecystitis than there is of making an equally early diagnosis of appendicitis; and, moreover, the gravity of the complications in the one condition is no greater than it is in the other. In the latter instance, however, neither the profession nor the general public opinion will hold that physician guiltless who watchfully nurses a case of appendicitis into a sudden and irreparable complication, while the profession is hardly ready to sustain the physician in requiring every case of cholecystitis to be operated upon as soon as it is discovered.

Even in the most remote communities of the United States, the physician who has a case of general peritonitis from appendicitis is today in an apologetic attitude, and it will not be long before the physician who finds himself with a case of cholecystitis, with pancreatitis, phlebitis, necrosis of the gall bladder, carcinoma in the region of the gall bladder, ulcer of the duodenum, or spasm of the pylorus and local infection, with its multitude of symptoms, will be required to give an equally embarrassing apology for his watchful care.

In actual practice today, complicated cases of 'appendicitis are excessively rare, while uncomplicated cases of cholecystitis are just beginning to receive the surgical treatment for which our thesis is defended.

Eichmeyer reports 120 consecutive operations from Kehr's clinic, in which simple cholecystostomy was performed in three cases and cholecystectomy in twenty-six complicated cases (some of the complications being fistula, dilatation of the stomach, carcinoma of the liver, carcinoma of the pancreas, fistula in the colon, calculi in the hepatic, or in the common duct). In another series of 316 cases, 134 were complicated cases of choledochitis, or other condition, requiring drainage of the hepatic duct, seventyeight of these were clear cases of a mechanical nature, of whom three died, twenty-three had benign complications, of whom also three died, fortysix had severe, or malignant, irremediable complications, of whom thirtysix died. *Every one of these cases could have been brought to surgical assistance by symptoms which appeared from three to thirtyfive years previously.*

We have long passed the time when jaundice was an absolutely essential symptom for the diagnosis of cholecystitis. We have also long passed the time when gall stones were looked upon as the essential object of operation upon the gall bladder or bile ducts. We no longer expect that gall stones will be dissolved by olive oil, or that the relief of gall bladder colic by whatever means secured is an indication of a cure of the disease or a promise of the safety of the patient; but we have not yet arrived at that stage of rational prognosis when we can say to a person who has symptoms adequate to establish the diagnosis of cholecystitis, that immediate surgical treatment is necessary. We acknowledge that the complications are grave and often irremediable. We allow that a large part of the cases generally termed ulcers of the duodenum and stomach, a large portion of the cases of motor insufficiency of the stomach, practically all of the primary carcinomas in the region of the gall bladder, both of the stomach and in the adjoining viscera and many other discomforts are consequentially related to a long active cholecystitis, and that local peritonitis, and many diseases of the liver, and symptomatic conditions in such remote organs as the heart, the bronchi and the facial nerves, are due to this disease, and yet we allow such patients to drift along into insoluble complications when they could be saved by a simple, safe, and not unpleasant drainage of the gall bladder.

The surgery of the gall bladder, which is designed to prevent the serious complications for which most gall bladder and bile duct surgery is now undertaken, is not unmodified by the surgical fashions of the day. Through the *ex cathedra* teaching of the operators in the great clinics of the world, where patients are more abundant than time for study, our near surgeons are now making exploratory laparotomies as our ancestors did in the early 80's. At that time it was necessary for an autopsy *in vivo,* the anatomy of the dead house not being sufficient for the education of the surgeon. The long incision is now made because an exclusive diagnosis is often prevented by the inability of the surgeon to have the patient under observation long enough for a close personal study and an accurate exclusive diagnosis. It must be admitted, of course, that exceptionally, the exploratory laparotomy will occasionally discover important attendant and related or unrelated conditions which might possibly require a subsequent surgical operation; but, on the other hand, the practice of making the long incision so protracts the operative maneuvers that many patients suffering of toxemia from gall bladder disease, or weak from diminished nutrition from the consequent motor insufficiency of the stomach, would either be deterred from accepting the promised relief of the operation or they would succumb of the added and unnecessary traumatism. The more accurate the diagnosis, the shorter the incision and the briefer the duration of the anesthetic, and the more pleasant the cure.

One cannot fail, in looking over the literature of the past three years, to observe the strong trend of operators toward cholecystectomy and ideal cholecystotomy or cholecystorrhaphy in cases where cholecystostomy was formerly performed. It has always appeared to me that the gall bladder was a more or less functionating viscus, and that it could not, like the appendix vermiformis, be removed without interfering somewhat with the function of the biliary apparatus. Several writers during the past three years have shown that in animals the gall bladder is replaced in the course of time from the simplest remnant of the cystic duct. This is particularly noticeable in the cases of Else in jack-rabbits. It has often been observed that dilatations appeared at the junction of the hepatic duct and the choledichus after cholecystectomy, and yet the patients who have had the gall bladder removed seem to recover quite as well and have quite as normal a biliary function as those who have been treated by simple drainage of the gall bladder.

My own experience in the matter has been modified, and my practice has been guided by my histological studies of the fundus of the gall bladder. A part of each of these organs operated upon by me has been removed for histological study. Even in the gall bladders that were not materially thickened, the fundus has been studied with adventitious mucous glands, frequently so encroaching upon the muscularis as to actually penetrate it with the branches of its epithelial structures. It is because of this *acne* of the gall bladder, as it might be called, that I would recommend protracted drainage rather than extirpation.

Another element has recently appeared in gall bladder surgery which seems questionable to me from many standpoints. It is the practice of sewing a rubber tube into the gall bladder with a purse-string suture, and dropping this viscus down into the abdomen and closing the remainder of the abdominal wound. This is a proper procedure when the gall bladder is atrophic.

If the operation is performed early in the course of cholecystitis, the gall bladder is not contracted and it is not so excessively thick that it cannot be drawn in contact with the abdominal wall. It is not surrounded by inflammatory adhesions connecting it with the pyloris or the colon. The cystic duct is not obstructed and the attachment of the gall bladder to the peritoneal incision presents no time consuming difficulties. The inflammatory exudate or hypertrophied tissue about the cystic duct does not exist until after numerous attacks of gall bladder disease and therefore the attachment of the fundus of the gall bladder to the peritoneal wall of the abdomen does not result in colic from tension upon the cystic duct

It has always appeared to me that the only indication for the removal of a gall bladder rested upon its own integrity and the potency of the cystic duct. If the cystic duct is pervious, or if its function can be restored, then the gall bladder should not be removed. If, however, the gall bladder is gangrenous, or if the cystic duct is so denuded of its epithelium by the pressure of a stone, or is so surrounded by cicatricial tissue that its function is impaired, or the passage of the bile completely obstructed, then the gall bladder must be removed. Cholecystectomy then seems to me not an operation of choice, but an operation of necessity, with well marked indications.

On the other hand, ideal cholecystotomy, or cholecystorrhaphy, does not seem to me to meet the indication of adequately draining the gall bladder and freeing it of infection and allowing the acne-like adenopathy which I have uniformly observed to subside. I believe that the early closure of the gall bladder after the removal of gall stones is unsafe, and where the cholecystostomy has been performed by some of my colleagues for cardiac disease and (on account of the method followed, the introduction of a drainage tube and the dropping of the gall bladder back into the depths of the abdomen) the drainage has not been continued beyond a few days or a few weeks at the farthest, the results have been uniformly disappointing to the patient.

The ideal treatment of cholecystitis as it appears to me in its early stages, before the cystic duct is destroyed, is cholecystostomy, with drainage of the gall bladder for six or eight weeks at the least. This operation should be performed through a laparotomy wound of not more than two inches in extreme length and the gall bladder wall should be attached to the peritoneum on both sides by a single or by a few sutures. The drainage tube should be placed in the gall bladder and sewed there with a silk worm gut stitch, and the lower portion of the wound closed either with or without a simple gauze drain to prevent the omentum from becoming attached to the gall bladder.

CONCLUSIONS

1. The many complications of cholecystitis are only added indications for an early operative procedure.

2. Every case of cholecystitis promises such serious, threatening and unremediable consequences and complications that anything but an immediate drainage is unsafe, unwise and unfair to the patient.

3. In early cholecystitis the proper operation is simple cholecystostomy, with prolonged drainage of the gall bladder and the biliary ducts.

4. The brilliant results which follow choledochotomy, and the other tragic operations which a long neglected cholecystitis frequently entails, are hardly creditable to the judgment of the medical profession, which allows them to be nursed into such an emergency under reputable therapeutic care.

WHY WEEPEST THOU? OR EPIPHORA*

By CLIFFORD P. JOHNSON, A.B., M.D., Coffeyville, Kansas

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Why Weepest Thou? is a question we physicians are called upon to ask many times during the year, not always audible to our patients, but in thought when we see a case of epiphora.

Epiphora is the name usually employed to distinguish a flow of tears over the lower lid margin upon the cheek, also called stillicidium lachymarum or watery eye. "Lachrymation refers more particularly to an increase in the supply of tears."

To understand this symptom—for epiphora is only a symptom and not a condition or disease—it is necessary to have a fair knowledge of the anatomy and physiology of the lachrymal system. The lachrymal apparatus is divided into two divisions—secretory and drainage. The latter is subdivided into three parts: the first portion comprises the lachrymal puncta and canaliculi, the second the lachrymal sac, and the third the nasal duct.

The lachrymal gland is a gland of similar structure to that of the pancreas and salivary glands and is divided into two parts, the superior and inferior lachrymal glands. The larger of the two lies in the upper external angle of the orbit in a depression in the bony walls of the orbit (in the lachrymal gland fossa). The smaller of the two lies along the excretory ducts of the superior gland directly beneath the mucous membrane of the fornix in the upper lid.

If we evert the lids, we see the little lachrymal papillæ with the minute orifices of the tear ducts, the puncta, at the beginning of the lachrymal bay. They are directed somewhat backward, that they may be the better applied to the surface of the conjunctiva, so as to suck up the tears. The lacrymal papillae are not precisely in the same vertical plane, but the upper is a little more internal, which admits of the more accurate closing of the lids. The upper puncta is somewhat smaller than the lower one. The little ducts, canaliculi, run close to the lid on their way to the lachrymal sac.

The sac lies in the inner angle of the eye in the lachrymal sac fossa which the lachrymal bone forms for its reception. The tensor tarsi muscle and the internal palpebral ligament incloses the sac in the front. The highest part of the sac extends somewhat above the internal palpebral ligament. The normal sac is about twelve to fifteen millimeters in length and five or six in width. The upper extremity of the sac is oval and somewhat larger than it is below.

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*Read before the Montgomery County Medical Society, March 21, 1913

The lachrymal duct is attached to the sac at its lower and smaller end. This point of transition from sac to canal constitutes the narrowest part of the lachrymal channel. The direction of the lachrymal duct is downward, and slightly backward and outward. The duct empties into the nasal fossa below the inferior turbinated body. The two lachrymal sacs are closer together than the lower orifices of the ducts.

The mucous membrane of the lachrymal duct is continuous with that of the sac. Histologically, the membrane is columnar epithelium similar to that of the nose. The canal is lined with ciliated epithelium (Suker). At the nasal opening, the mucous membrane is reduplicated, forming a fold which has been described as the valve of Hasner.

The duct passes through a bony canal lined with periosteum. The arterial and venous supply to the lower part of the lachrymal duct is plentiful, yet there is a conspicuous absence of vessels of importance. There is a dense venous plexus extending through the nasal duct, the lower portion of which is so large that Henle called it cavernous tissue.

The nasal duct arises as a strand of thickened epithelium along the rudimentary nasooptic fissure, which afterwards becomes entirely separated from the surface and for some time is wholly surrounded by mesenchymal tissue (Schaeffer). This differentiation begins about the end of the fifth or the beginning of the sixth week. The strand or cord of epithelial cells between the maxillary processes externally and the outer nasal processes internally, thus isolated from the surface, is in part without a lumen. Both the nasal end of the nasolachrymal duct and the cephalic portion of the lachrymal sac grow as sprouts from the mother cord of cells. "The lumen of the several portions of the nasolachrymal passages is established in an irregular manner. The ocular end of the mother cord is the first to establish a lumen. The point of coalescence between the nasal end of the cord and the mucous membrane of the inferior nasal meatus is the last to become patent, the lumen here being established approximately at 'term' or even later. The horizontal portion of the lachrymal ducts establishes its lumen before the vertical portion."

Normally the lachrymal gland secretes only a sufficient amount of tears to keep the eye moist, and hence very little reaches the nose, the most being evaporated from the cornea and mucous membrane. The tears are largely water, the solid portion being principally sodium chloride, hence "salty tears." The tears do not flow over the borders of the lids because they are lubricated with fatty matter, but instead they are accumulated at the inner angle of the eye, the lachrymal bay. If they are not excessive they pass into the puncta through the canaliculi, sac and duct into the nose.

"The flow of tears to the nose is not a simple physical phenomenon, but rather a complicated one. Briefly stated, there are six theories which endeavor to explain this act. They are as follows: (1) The siphon theory; (2) the capillary theory; (3) the aspiration theory; (4) the sac compression theory; (5) the sac dilation theory; (6) the lid closure theory." While some accept only one or the other of these theories, probably the truth of the matter is that all have some foundation in fact and play a part in the passage of the tears downward.

According to Suker, the ciliated epithelium materially assists in the capillary and suction drainage of the tears into the nasal cavity. The flow of tears downwards prevents infectious material from the nose gaining an entrance into the canals and sac. The socalled valve of Hasner is supposed to prevent air and bacteria from entering the duct.

The drainage apparatus is inadequate to excessive lachrymation, even if it be normal throughout its entire length. In the case of strong emotions, as grief and laughter, there is an epiphora. Such emotions as anger may bring forth a flow of tears. Things that strike us as very witty, funny, odd, or amusing may bring forth a flow of tears probably by stimulation of the lachrymal gland through the sympathetic system, though it has never been demonstrated that the sympathetic nerves can cause the gland to secrete.

Irritation of the conjunctiva, canaliculi, sac, duct, or mucous membrane of the nose produce epiphora by increase of secretion. Foreign bodies, exposure to bright light and smoke, and nose irritation, affecting the terminal twigs of the trigeminus, optical defects, as eye strain, frequently produce "watery eye." Some cases of habit lachrymation are due to eye strain, the patient saying, "Doctor, my eyes are weak, for they water all the time." Epiphora may result from inflammation of the intraocular tissues or of the conjunctiva, cornea, or edges of the lid; injuries of or foreign bodies on the eyeball or beneath the eyelids.

The physician should never neglect to make or have made a rhinoscopical examination whenever a case comes to him with epiphora.

Lachrymation may be caused by a slight nasal catarrh. Young subjects with chronic coryza and baggy turbinals often have epiphora, which ceases when the nasal trouble is cured. Lachrymation may also be due to reflex irritation, mainly through the medium of the fifth nerve.

Foreign bodies may gain access to the lachrymal canal through the nose by working in or by being blown in. The function of the nose being that of a filter, as well as olfaction and respiration, subjects the mucous membrane of the nose to infection from the 1,500 to 14,000 microorganisms which are filtered out of the air each hour by the oily hairs at the entrance and the moist mucous membrane of the nose (Sauer). About 90 per cent. of the diseases of the lachrymal drainage system which produce epiphora are of nasal origin.

"In eversion of the punctum (lower) it looks forward and away from the depression in which the tears accumulate, and the result is epiphora. The condition may be due to a relaxed state of the lids in old age, to conjunctivitis, blepharitis, and ectropion." The puncta may be congenitally absent through nondevelopment, or it may be obliterated, closed, misplaced, or occluded through scar tissue as results of trauma, trachoma, burns and ulcerations. In either case the symptom is the same, epiphora. Foreign bodies (eyelashes, cinders, or concretions) in the puncta will produce epiphora. They do not necessarily have to entirely close the puncta in order to produce an increased flow of tears.

The lachrymal passages may be involved in connection with burning of the lids and conjunctiva, particularly by glowing metals. acids, alkalies and lime. Injury to the canaliculi, sac, and canal occurs from lid and nasal wounds; from shots or pointed sticks. Würdemann reports cases of the closure of the lachrymal passages following the healing of a dog bite of the lid, brow, and globe, also a cow horn injury, in which the lid was torn and the ethymoids and nasal bones fractured.

Malformations of the canaliculi are the commonest forms of abnormalities met with in connection with the lachrymal apparatus. Occasionally one or more of the canaliculi are completely absent. "All kinds of foreign bodies may be found sticking in the lachrymal canaliculi, especially cilia, portions of insects, grains of chaff, wood, finger nail clippings, more seldom iron, stone, sand particles, or concretions of streptococcus Foersteri, hairs, eyelashes, pieces of silk thread, or dacryoliths. These have first laid in the conjunctival sac and been carried by the tears and movements of the lids into the canalicus. They may cause considerable irritation and epiphora, and are often overlooked. Ball cites a case where a round hard mass, formed by the growth of leptophrix, had been formed in the canaliculus.

The lachrymal sac is principally subject to two diseased conditions, dacryocystitis, both suppurative and nonsuppurative, and a stenosed condition of the opening into the lachrymal canal, producing excessive tearing—the epiphora.

About 5 per cent. are of purely ophthalmic origin. The lachrymal apparatus is affected from the nose in the following ways:

"1. By continuity along the surface of the mucous membrane, as in acute and chronic rhinitis, chronic suppuration, ozena, etc.

"2. By direct extension through the tissues; as in tuberculosis, scleroma and malignant diseases; or by erosion of the intervening bony wall in suppuration of the neighboring sinuses, the maxillary antrum and the anterior ethmoid cells. The latter particularly have been emphasized by some writers as a cause of suppurative dacryocystitis, and authentic cases have been recorded.

"3. Compression of the bony duct from the pressure of a deviated septum or sharp spur, a hypertrophic or cystic middle turbinated bone, nasal polypi, dental crypts, and occluded teeth.

"4. Congenital atresia of the nasolachrymal duct.

"5. Injuries from accident, and injuries during operative procedures upon the maxillary antrum, which may occur not only when the sinus is curetted from the canine fossa, but also from the intranasal operation.

"6. Finally, and perhaps the most frequent intranasal cause of the conditions under consideration, is hypertrophy of the anterior end of the lower turbinate. This is the form of obstruction of the lachrymal canal which varies so much with the changes of the seasons, with the state of the patient's health, and as the result of the neuroses which affect the nasal mucous membrane. Obstruction from this cause occurs not only when the swollen mucous membrane occludes the nasal orifice of the canal, but even when the swelling is not so pronounced." "In the socalled hypertrophy of the turbinal, the veins of the turbinal are permanently dilated. In like manner, the veins surrounding the lachrymal canal become dilated, and, as the bony duct is unyielding, pressure is exerted upon the membranous canal. Thickening of the periosteum and the formation of exostoses are associated with hypertrophy of the turbinal. In like manner, the periosteum of the nasolachrymal duct becomes thickened, and its lumen is further narrowed by the deposit of new bone upon its walls."

Dacryocystitis produces epiphora through reflex irritation as well as through blocking the tears. Inflammatory conditions of the sac are largely produced by the damming back of the tears by a stricture in the duct.

If the canal be closed from swelling and not a complete stricture, fluids can be made to permeate through the same into the nose, first by instilling a few drops of 4 per cent. cocaine solution into the upper end of the duct. The opening is better detected by using a colored fluid ("1-5000 pyoktanin makes an excellent stain"), traces of which can be seen in the nose if the canal is open at all.

In any case where the symptom of epiphora is present the cause should be ascertained if possible before any therapeutic means are employed. The treatment will largely depend upon the condition producing the symptom. The conditions to be sought for are the removal of the cause of the reflex producing an excessive lachrymation and to the finding of the obstruction if present in the drainage apparatus.

The following cases of epiphora are chosen from the numerous cases which have come to us for relief, with the idea of emphasizing the importance of locating the cause of the symptom before undertaking to treat the patient for the epiphora:

CASE A. Age 23.—A clerk, Mr. A., came to us last October complaining of smarting and burning of his lid margins and watering of his eyes. Refractive test showed astigmatism. Glasses were put on him, R.E. cyl. + .37 A. 90 L.E. cyl. + .37 A. 90. The irritation of the lids subsided and the epiphora ceased. Twice since then he has had his mounting bent, which caused the cylinders to be out of line, when his symptoms reappeared and gave trouble until relieved by proper adjustment of his glasses.

CASE B. Age 25.—When three or four years old Miss B. fell against a hot stove and burned the right side of her face and both lids of the right eye. The lower lid had never completely healed. The patient had never been free from epiphora since that time. On examination we found ectropium of the lower right lid. The lid was boggy and the puncta closed. A watery serum was oozing out through a number of fistulous openings on the exposed mucous membrane of the ectropic lid.

The treatment consisted of opening the puncta and protecting the exposed mucous membrane of the lower lid with a coating of a simple unguentum, the principal ingredient of which was petrolatum. The epiphora has ceased and the fistulous openings have closed.

CASE C. Age 42.—Mr. C. came to us last January complaining of pain and swelling of the nose near his left eye, which had bothered him for over a year. The annoyance of the tears almost constantly running down his left cheek was in evidence during this time.

He said that a physician had at one time diagnosed and treated his case as erysipelas. The doctor had mistaken the phlegmon which sometimes accompanies acute dacryocystitis. On examination we found a typical case of chronic dacryocystitis. The lachrymal sac was distended with pus, while the lower puncta of the left side was stenosed.

Treatment: The puncta was opened. The sac was then emptied by pressure, thus forcing the accumulated pus out. The sac was cleaned daily by syringing with a four per cent. boric acid solution for twelve days. The stricture at the junction of the sac and nasal duct was then opened by the use of probes. The epiphora steadily decreased from the time treatment was first begun until the end of the fourth week, at which time the patient was free of this distressing symptom. He has had no trouble with epiphora since that time.

A six-year-old son of Mr. C. was brought to us by his father. His chief symptoms were twitching of the lids and epiphora. On examination we found the boy to have hypermetropia. His symptoms were relieved by the use of proper glasses.

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SANITARY PROBLEMS IN THE PHILIPPINES ON AMERICAN OCCUPANCY

By L. MARVIN MAUS

Colonel, Medical Corps, U. S. A., First Commissioner of Public Health for the Philippines

When the American troops entered Havana and Manila in 1898 they found the sanitary condition of those famous tropical capitals similar to that of European cities during the medieval ages. For centuries the mortality from epidemic, filth and tropical diseases in Cuba and the Philippines had been so great that these fair "Pearls of the Antilles and Orient" were regarded as veritable charnal houses, both for native and foreign born.

Much has been said and written about the great financial cost and unnecessary loss of life entailed by the war with Spain in the acquisition of Porto Rico and the Philippine Islands. Severe criticism has been launched against the administration during the past decade for the grave strategic and economical mistakes in holding the Filipino people in bondage, in spite of their helpless and universal protest for independence.

The Philippine Islands came into our possession as an incident of the recent war, and it has become our painful but sacred duty to retain them until they become self supporting and their peoples qualified to administer the affairs of the new republic, whose star is slowly but surely rising in the far East.

The military conquest of Cuba, Porto Rico and the Philippines should not be reckoned by the cost of the war or the loss of a few thousand lives, but by the inestimable blessings conferred upon them through scientific sanitation and progressive economical ideas, which are destined to revolutionize the tropics, both from a commercial and sociological standpoint, during the coming generations.

The splendid work of the Army Medical Board for the suppression of yellow fever, which has received recognition as the most valuable etiological discovery of the age, has not only paid for the war by added national prestige, but also through increased commerce and lowered death rate in our Southern States, Cuba and South American republics.

Before discussing the great sanitary work accomplished in the Philippine Islands, let us glance at the general condition of their peoples at the time of American invasion.

Before the Spanish War few of the natives could read or write, and their sociological condition might have been aptly compared to that of the semicivilized Indians of Arizona and New Mexico at the present day. The educational institutions of the Islands were practically confined to Manila and a few of the larger pueblos. With the exception of the wealthy natives and mestizo classes, few of the inhabitants enjoyed the privileges of an education.

During the centuries of Spanish domination and misrule the slogan had ever been to "Amuse the Indian, but keep him ignorant." In fact, the Filipinos had receded, from an educational standpoint, since the conquest of Spain in 1565. Father Chirino, an Augustinian friar, who reached the Philippines in 1590, said on his arrival, "There was hardly a man, and much less a woman, that does not read and write in letters peculiar to the Island of Luzon."

Generally speaking, the domestic environment of the Filipino was confined to a two or four room nipa house, elevated on bamboo poles eight or ten feet above the ground in order to avoid dampness.

His furniture was primitive and simple and rarely included chairs, tables or bedsteads, while illumination was secured by means of tallow or cocoanut oil dips. Rice and fish formed the staples of his dietary, and a home made straw hat, cotton shirt and trousers his wardrobe.

Drinking water was taken from an infected well within a few feet of the kitchen door, which was surrounded by a setting of garbage, filth and human excreta. The family caraboa, dog and domestic fowls were domiciled under the house, and the adjoining fences were overgrown with weeds and dank vegetation.

Practically all of the country people lived in poorly lighted towns and villages with wretched streets, and it will take no stretch of the imagination to realize the dreariness and monotony of their surroundings. There were few social distractions or amusements to make life pleasant in the Filipino village.

They were deprived of education and the elevating influences of books, magazines and newspapers, and it was no wonder that they had become tired of their old masters and were willing to accept any other government fate chanced to send.

With the exception of a third class bureau of health, which was connected with the central government in Manila, health boards did not exist in the archipelago. There were a few hospitals under the control of the monastic orders in the large cities, but no vital statistics of the people were recorded.

While there are no mortuary records of the people outside of Manila, it is believed that eighty per cent. of the children died during infancy as a result of defective nutrition, cholera infantum and infantile convulsions.

The Philippine Board of Health was organized in 1901 under the administration of William H. Taft, the first civil governor, who appointed the speaker the first commissioner of Public Health for the Philippines.

The provisions of the bill creating the Insular Board of Health were very liberal, and it was due to this fact that the board was enabled to frame health laws and create a health department, which practically revolutionized the sanitation of the islands and reduced the death rate of Manila 50 per cent. during the first year of its existence. The death rate of Manila in 1900 was 60 to 70 per 1,000, while in 1902 it was reduced to less than 30 per 1,000.

Among the many vital questions which concerned the Board, were the creation of laws for the practice of medicine, dentistry, pharmacy, veterinary surgery, midwifery, undertaking and embalming, compulsory vaccination against smallpox, segregation of the lepers, and the organization of municipal and provincial boards of health. Besides, the Insular Board acted as the local board of health for Manila, and had to provide a set of health ordinances for the city, in addition to its sanitary care.

The laws pertaining to medicine and allied professions in the Philippines stand today as models of their kind, and it was due to their speedy enactment that the flood of quacks and impostors were barred from the islands and the ignorant and poverty stricken natives saved from their deception and merciless importunity.

The city of Manila was stricken with bubonic plague in 1900 and 1901, and the successful campaign waged against the endemic involved the destruction of the rodents with which the city was infested. A low estimate of the rats destroyed during the crusade places the number at 800,000, of which about 20,000 were examined microscopically.

The extermination of the plague in Manila in 1901, which followed within six months after beginning the campaign against the rodents, was the first practical demonstration in the history of that disease of the theory that infected fleas served as the host of the plague bacillus, which marks another great sanitary triumph for the United States.

Smallpox, which had been in evidence in the Philippines for a century or more, was common throughout the archipelago on American occupancy in 1898, and proved one of the most serious sanitary problems during the early occupation of our troops.

The disease was scattered throughout the pueblos and country districts and was encountered on the streets of Manila in its most virulent form. Indeed, it became a most serious menace to the health of our troops, many of whom contracted the disease and died.

In justice to the protection afforded by vaccination against smallpox, I believe that only those men contracted the disease who had received a spurious vaccination, or in whom the immunity from vaccination had died out.

Vaccination was not commonly practiced in the pueblos and rural districts at this time, which was partly due to the poor facilities for the manufacture of virus and its distribution. Besides, the natives were strongly fatalistic in their views on life and believed disease and death to be penances for religious dereliction, and hence inevitable.

Nothing was done to prevent infectious diseases, and even funerals from smallpox were conducted publicly and the community litter coffin, in common use, returned without disinfection to its niche in the church after carrying the corpse to the campo santo.

In 1901 a compulsory vaccination law was enacted, and within a few years over 3,000,000 of the natives were vaccinated. Virus was prepared by the Board of Health from caraboa heifers and sent to the provinces on ice, which became necessary to prevent its decomposition. The vaccinations were conducted by sanitary officers appointed by the Commissioner of Public Health and enforced by the local municipal authorities.

As a result of this law smallpox was practically exterminated within a few months and thousands of valuable lives saved annually to the community. The last annual health report of the Philippines (1913) states there has been no death from smallpox since 1909.

Oriental leprosy has occupied an important position among the diseases in the Philippines for centuries. According to some historians, the disease was brought from Japan. There is a legend that the Shogun Ieyasu sent a shipload of lepers to the Philippines in 1600 with the Catholic friars, who were exiled for political reasons from Japan about that time.

The afflicted from this terrible malady were numerous in the Philippines and with few exceptions lived with the noninfected element.

Under Spanish domination many of them occupied positions of importance as village presidents, councillors, treasurers and notaries public. No restriction whatever was enjoined against their attendance at church, in religious processions, at cocking mains, balls or against neighborly visits.

Under the direction of the Insular Board a census was begun in 1901 which disclosed the presence of about 4,000 lepers. A law was passed for their segregation on the Island of Culion and funds appropriated for the construction of suitable buildings and their maintenance.

The Island of Culion, which is about the size of the Panama Zone, and contains 380 square miles, is especially adapted as a colony, containing as it does all of the elements necessary for making it self-supporting in the way of agricultural, fruit and grazing lands.

Besides, its isolation from the main islands of the archipelago precludes the escape of the colonists. Hospitals, churches, schools, and places of amusement have been provided, with competent physicians, nurses, teachers and administrators.

The law has been in operation since 1907, from which date practically all of the lepers have been collected. In the selection of cases it became necessary to resort to microscopical examination in many cases, in order to exclude syphilis, yaws, paralytic deformities, elephantiasis, Madura foot and other diseases, which clinically resemble leprosy and were mistaken for it by the natives themselves.

The colony at present represents about 2,500 souls, the annual death rate of which is close to 100 per 1,000. Few new cases have occurred since the law was put into effect, and it is believed the disease will disappear from the archipelago with the present generation.

Asiatic cholera, which had made frequent visits to the Philippine Islands during the nineteenth century, returned again in March, 1902. During its presence in 1884 it is said that over 3,000 deaths occurred in Manila in one day, and hence its return was announced with the greatest apprehensions. Following in the steps of the insurrection among a half famished population, whose domestic habits and wretched sanitary condition were so poor, the problem of control seemed almost hopeless.

In order to combat the epidemic, which was unusually virulent, all of the cisterns and wells of the city were ordered closed and the inhabitant supplied with distilled water for drinking purposes. The Mariquina River, from which the city system was supplied, was guarded by troops to prevent infection, and a quarantine was thrown around the city to prevent those infected from escaping into the country towns and districts. Sanitary inspectors were enrolled, the city divided into districts and a daily house to house inspection made.

In the beginning of the epidemic cholera cases were transferred to hospitals organized for the purpose, and the contacts transferred to a special camp, where they were kept under observation.

The natives opposed the various measures ordered by the health authorities, and rather than have their houses quarantined, drove the infected members of their families into the streets and threw their dead into the esteros or Pasig River, or secretly buried them in the neighboring rice paddies.

The epidemic lingered in various sections of the archipelago until 1910, at which time the deaths were estimated at 300,000. Should my memories of the Philippines fade one by one, the last to leave would be my recollection of the great cholera epidemic, which scourged the archipelago in 1902.

Many radical changes have occurred among the Filipinos since 1898, along sanitary, educational and sociological lines. Local boards of health have been established throughout the towns and villages of the islands, and a campaign of sanitary education introduced which has revolutionized the habits and customs of the people. Artesian wells have supplanted, in many communities, the infected surface wells, and the conservancy pail system the insanitary closet arrangements.

Through the beneficence of a public school system the light of American education has filtered into the darkest corners of the archipelago. Where one heard the jargon of fifty dialects ten years ago, English is now spoken by the rising generation. Illiteracy, which claimed 98 per cent. of the population in 1898, has been reduced to less than 50 per cent.

Athletic sports have been encouraged by the American teachers and marked improvement has been observed in the physical development of both sexes. Tennis and baseball have been accepted as the national game, not only in the Philippines, but also in Japan and China, since American occupancy.

Manila, with its modern sewer system, splendid water supply, electric street car and lighting system, new hospitals, magnificent hotels and clubs, beautiful parks and clean streets, has become the pride of Oriental cities and leads them all in its low death rate.

The capital city now possesses a great university with colleges of medicine, pharmacy, veterinary medicine, law, engineering, agriculture, forestry and the liberal arts. A bureau of science has been established with well equipped chemical and biological laboratories for the study of diseases afflicting both man and animals.

Besides these, the government has constructed a large ice and refrigeration plant in Manila and a hospital of 300 beds, which affords ample accommodations for the families of civil employees and the public at large.

The Philippines have never been popular with the American people and little has been said or written of our sanitary or colonial successes in the far East, while the public has been kept in close touch with the work in Cuba, Porto Rico and the Panama Zone by every newspaper and magazine in the land.

When a last analysis has been made the public will finally learn that our sanitary successes in the Philippines, with its 8,000,000 people and 125,000 square miles of territory, will far outweigh those of the Panama Zone, with its 70,000 people and 380 square miles, especially as the work in the Philippines has practically cost the United States nothing, while the sanitary work of the canal has cost our Government nearly fifteen million dollars.

It has been impossible within this brief summary to give more than an outline of the wonderful work achieved in the Philippines during the past ten years through American brains and brawn.

No colossal waterway has been constructed over there connecting the two great continents of the world, but a model government has been planted and a new race born, whose progressive and civilizing influences are destined to permeate the darkest corners of the Orient and make the name of America blessed for centuries to come.

AUTOTHERAPY VERSUS OPERATION

By Charles H. Duncan, M.D.
New York

Patient, female, married, age fortyfive years, was first seen in December, 1911, suffering with an inflammation of the gall bladder. Under the usual treatment she alternately improved and relapsed several times during the following year. On January 21, 1913, she became very much worse. Her condition pointed unmistakably to pus in the gall bladder. She had pain over the region of the gall bladder that extended to the back; the least movement, even talking or deep breathing, causing severe pain. She vomited at seven o'clock on the morning of the 21st, and at eleven o'clock p. m. she had a chill.

The next day Dr. George F. Laidlaw was called in consultation to see the case. With merely an introduction he diagnosed the case *Colicystitis,* the same diagnosis the writer had previously made. He recommended an operation within fortyeight hours.

The writer elicited the further fact that the patient had been suffering with a catarrhal condition of the respiratory tract, the beginning of which coincided with that of the pain in the region of the gall bladder. Autotherapy of bronchitis and catarrhal conditions of the respiratory tract having previously been so successful in the hands of the writer, it was decided to make a test of this case to see whether the treatment of the catarrh with the filtrate from the sputum would have any effect on the condition of the gall bladder. Accordingly, four c.c. of the sputum were placed in an ounce of distilled water and allowed to stand for twentyfour hours with occasional agitation, after which time it was filtered. On January 22, at ten o'clock p. m., twenty minims were injected hypodermically in the loose cellular tissue over the biceps muscle. The next day she reported that within ten minutes after the injection the pain became very much worse and continued to be very severe until three o'clock a. m., after which time she went to sleep and did not wake till seven o'clock the next morning. When seen the next day, the patient was comfortable, though there was still some soreness in the region of the previous pain. She gradually improved, however, and did not have another pain for two weeks. These pains were dull and aching in character, but not as sharp or severe as they were before. However, the patient became frightened, and feared the old trouble was returning. Another injection of the same filtrate was given, when the pain again disappeared within a few hours. The injections were repeated every five days as long as the catarrhal condition lasted, that is, until March 20th. She has not had any pain since the second injection, which is now about three months. At this time the patient has gained seven pounds in weight and can now eat food which had been restricted during the greater part of the past year. She can ride in the automobile which had given her distress during the past six months. On March 20th she reported that she had no more catarrhal symptoms. The sputum had been gradually diminishing since the first injection. The patient was discharged on this day, but told to return if she had any more pain, or if the catarrhal condition returned. She came to the office in response to a telephone call, but a physical examination did not reveal any soreness or tenderness over the seat of the former pain. She said she was in good health and she apparently was. As was stated above that she had had no pain; she has not had, except immediately after each injection; at such times she usually had some slight pain lasting for five or six hours. At one injection, February 10th, she was given one c.c. of the filtrate. Immediately after this injection she said she was very sick and had considerable pain, but it passed off within six hours. The last two injections caused no pain.

While it is realized that one case usually means nothing, the definiteness of the object sought, the violent reaction and the speedy cure, agreeing as they do with the general rules already formulated by the writer in autotherapy of disease, it is believed this method of treating abdominal complaints or conditions should be thoroughly investigated. In considering the case of colicystitis, many important questions arise. One is: In how many diseases may the causative microorganisms be obtained from the sputum? It has, as far as the writer knows, never been asserted that in a disease apparently as remote from the lungs as colicystitis, the toxins may be obtained from the sputum; but as shown in this case it apparently was possible to obtain the toxins from the sputum. Is it not possible, yes even probable, that the microorganisms are brought to the lungs with the inspired air and enter the respiratory tract at a point where the continuity of the mucosa is interrupted, or at some microscopic foramina? May not the microorganisms proliferate here, some being expelled with the sputum, others or their toxins passing into the circulation and reaching distant parts, thus producing constitutional disturbances, such as pain, increased temperature, etc.? How often have we seen patients suffering with a toxic disease supposedly foreign to the lungs die from pneumonia that developed quickly? We are all familiar with this occurrence. The question that engages attention in this connection is that had this bronchial condition been recognized early and the filtrate from the sputum containing the specific microorganism been therapeutically employed, might not such patients' lives have been spared? How far this therapeutic measure may be extended to other affections considered as dissociated can only be conjectured at present. Heretofore catarrhal conditions often accompanying toxic diseases have been accounted for on the basis of impeded circulation. A question still to be answered is how many acute, subacute and chronic affections known or suspected to be toxic in nature are at times accompanied by catarrhal states of the respiratory and other tracts? Thought instinctively turns to some forms of psychopathic affections, acute and subacute endocarditis, nephritis, pancreatic, pelvic, and intestinal disorders. Is it not probable that occasionally we may be able in some of these diseases to obtain the products of the causative microorganisms from the sputum and successfully employ them in therapy? If the above theory regarding the etiology of disease is correct, surgical operations may often be aborted. Surgical operation, however, does not remove the underlying cause of the surgical condition, it simply removes some of the effects. The causative microorganisms, proliferating in the lungs, may again migrate to distant parts of the body, and set up constitutional disturbances, such as pain, increased temperature, etc. In this connection it is interesting to inquire, how many diseases have the same causative microorganisms as their chief etiological factor? Autotherapy tends to remove the cause of the disease. There is no doubt in the writer's mind that by autotherapy many conditions supposedly demanding operative measures may be cured, and the operation itself be avoided. Just how many, clinical tests alone will tell. The present indications are that there will be many more than the writer would care at present to predict. It is the condition behind and deeper than the operation that autotherapy often cures. To the large number of physicians who have addressed the writer for filtrates and instructions for applications for autotherapy, it is suggested that the filtrate of the sputum be employed in the treatment of many diseases. Diligent search for the discharge of the disease by whatever route they may be eliminated is a main consideration. In acute conditions, a speedy relief may be expected, but in chronic conditions the treatment may have to be extended over a number of weeks or months. A diagnosis is often unnecessary as far as a cure is concerned.

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EDITORIALS

MODERN PROBLEMS OF NUTRITION

Until very recently, in fact, until the present century, physiology has been dominated by morphological concepts, and the microscope has held sway as the instrument by which the unknown facts of life were to be discovered. This dominance of morphological methods is still noticeable at the present day, both in the course given by the medical schools and in the practice and teachings of the clinician. Within the present century, however, the fundamental value of chemical studies has become recognized, and biochemistry is rapidly coming into its own as the most valuable means of discovering the processes by which life and nutrition, health and disease, are maintained, brought about, or overcome. The old analogy between the human body and an engine is no longer adequate, for it is recognized now that the fuel—nutrition—of the body must supply, not only the energy for the working of the parts, but also the materials for the continual restoration of the losses caused by wear upon the parts. Chemical and not morphological studies will provide the details of these processes of utilization of the nutritive materials. Franz Knoop in a summary of a lecture delivered before the Harvey Society at the Academy of Medicine, *New York Medical Journal*, March 29, 1913, says that the conception of the existence and action of hormones was an enormous stride toward the elucidation of some of the chemical processes. At present no thinking person can regard the secretions of the pituitary, thyroid, adrenals, etc., without seeing the necessary corollary that the chemical processes in the human body must be very sharply specific and must be concerned with elaborate destructions and syntheses.

Many attempts have been made to isolate from the bodies of man and of animals some of the intermediate products of the chemical changes which one or another type of food underwent, in the hope of being able to trace the whole course by means of these indications. Such attempts have been only partly successful, and this because of two main facts: First, that the chemical processes in man takes place under the most remarkable uniform conditions of moisture, motion, heat, etc., conditions which it is well nigh impossible to maintain *in vitro;* second, that the processes of oxidation or reduction, of synthesis or destruction, take place very slowly, only a few molecules of a product being formed at a time. On this account the concentration of intermediary metabolic products in the body is extremely small at any one time, although during the course of a day a comparatively large amount of material may be utilized.

By means of perfusion of single organs, and other similar methods, by which a single step can be watched and the intermediary products obtained in sufficient concentration for isolation and identification, some advance has been made. But we are still far from the goal.

The practitioner looks upon the chemical methods as something perhaps of scientific interest, but certainly of no value to either his patient or to himself. This attitude is utterly fallacious, and it may be stated that the study of reactions *in vitro* has led to the understanding of many of the problems of more elaborate metabolic processes.

By such studies, coupled with simultaneous or subsequent observations of the processes *in vivo,* it has been our good fortune to gain an understanding of the metabolism of the fatty acids. These acids have been found to undergo oxidation, in which they always lose two carbon atoms. By this process they are gradually reduced to relatively simple chemical compounds. On the other hand, the amino-acids are oxidized in such a way that they lose but a single carbon atom. Subsequent to this type of chemical change, and after reduction to a certain point, they undergo a further simplification with the loss of their nitrogen and the conversion of the acid from one of the amino series to a fatty acid. From this point the process continues as in the case of the acids which started as fatty.

These observations on the catabolic changes of these two groups of substances led to a study of the possibility of the synthesis of proteid from carbohydrate, it being already known that the reverse process could take place.

By treating grape sugar *in vitro* with ammonia it was found that aminoacids could be formed. *In vivo* the same process is possible, for ammonia is always present and the synthesis consists in an interaction between this substance and one of the alpha ketonic acids which are derived from carbohydrates in abundance. The resulting aminoacids, formed either *in vivo* or *in vitro*, are *Bausteine* (building stones) for the synthesis of proteids. Thus, by the discovery that alpha ketonic acids arise from the metabolism of sugar, and that these acids may be converted into aminoacids by the action of ammonia, we have the explanation of the proteid sparing action of the carbohydrates and of ammonia, both of which facts have been recognized by the clinician, but which have been held to be impossible by the older school of metabolic physiologists, for they did not recognize the possible conversion of carbohydrates into proteids.

From these observations we are led to believe that the products of intermediary metabolism may, and probably often do interact one with the other for the formation of new products.

We are led, further, to the suggestion that obesity may be the result, in some cases at least, of an interaction between the several fatty acids, or, rather, of a reversible fatty acid metabolism.

In addition to the elucidation of the facts of nutrition by biochemical methods, it is to be recalled that many, if not most, disease processes are probably chemical in basis. It is to be borne in mind that ever so slight a disturbance in the chemical processes may lead to the most far reaching and disastrous disturbances to health.

At the present time all branches of medical science are calling to the biological chemist for the explanation of these intricate processes, which he alone is in a position to determine.

DISPENSARY AND HOME TREATMENT OF TUBERCULOSIS

A quite remarkable change of attitude on the part of the medical profession has taken place within recent years with regard to the treatment of tuberculosis. Time was, and that not long ago, when sanatorium treatment was hailed as the only means of successfully fighting the hydraheaded monster tuberculosis, and the medical man who ventured to state his opinions that there might be other ways was laughed to scorn. However, but a few years have passed, and although the sanatorium has not been relegated to the dust heap, it has greatly retrograded in the opinion of authorities, and as a matter of fact is not regarded as by any means the chief factor in the campaign against tuberculosis. It has taken its proper place in the fighting line, which is considerably behind dispensary and home treatment. The dispensary at the present time is rightly looked upon as the headquarters of the campaign in any district. The initiation and development of dispensary and home treatment of tuberculosis are more largely due to Sir Robert Philip, of Edinburgh, than to any one man. Indeed, the system is generally known as the Edinburgh system. The Victoria Dispensary for the treatment of tuberculosis was opened in Edinburgh as far back as 1887, while the next in the British Isles was not opened until 1909. In New York excellent work in this direction has been going on from the Post Graduate Hospital during some years. At the present time, dispensaries abound and are springing up everywhere. The dispensary system has received the seal of official approval, and has finally culminated in the official adoption of an organized scheme as the fundamental basis of a national campaign against tuberculosis. The importance of the other methods, the sanatorium, the open air school, the hospital for advanced cases and the hospital for surgical tuberculosis, is not minimized. But these are so linked together that in unison they will work much better than ever before. The dispensary will feed the other institutions with the most suitable class of patients, and thus each will bear its rightful share of the fight. Yet the brunt of the fray will be borne by the dispensary, and when the matter is carefully considered the reason for this will appear obvious. The citadel to be stormed is the home, for in the homes of the poor is the seat of the disease. Tuberculosis can never be stamped out by treating those already infected and allowing the disease to spread unchecked. It is not practicable to prevent this spread by isolating every case, for two patent reasons. There are too many patients and the disease lasts too long. Consequently, the dispensary, with its staff of doctors, nurses and voluntary visitors, must endeavor to prevent the spread of infection. Furthermore, it lies within its province to search out unsuspected cases and promptly to provide treatment. The great majority of those afflicted with tuberculosis must be treated at the dispensary alone, and not sent to a sanatorium. The sole hope of eradicating tuberculosis rests with the dispensary, and it is well that this is now recognized.

THE PROBLEM OF PRACTICAL EUGENICS

A great deal of somewhat wild talk is going on with regard to eugenics and mendelism. There are those who confidently assert that the human race can be regenerated morally, physically and mentally by following the principles of eugenics taught by Mendel, by Galton and by the disciples of both. Indeed, some state that it is more or less of an easy matter to put into practice the modern teachings of eugenics and that we are foolish and lax not to set to work immediately thus to save the world. However, those who know best are much more careful and conservative in their statements. They freely acknowledge that the difficulties in the way of successfully carrying out the theories of Galton and others are very great, and that the only hope of ultimate or of even partial success lies in proceeding warily and discreetly. In fact, they who know their subject best are the most willing to confess that the time is not yet ripe to try to practice eugenics on a wide scale, but that much patience and perseverance must be expended ere practical results can be expected.

Among those who argue sanely and reasonably and who have also made an exhaustive and painstaking study of the question is Dr. Caleb W. Saleeby, of London, who read a common sense paper on eugenics before the International Congress of Hygiene and Demography held last September in Washington. He points out that modern research, especially in Genetics, based upon the work of Mendel, which was unknown when Galton began his work, has taught us the immense difficulty of Galtonian eugenics, the doubtfulness of its assumption as to stocks, and the necessity for analysis of individuals, even within a given family, as in the case of Mendel's peas, for brothers and sisters may be as un- "like as two peas" was found by Mendel. Also the theory of natural selection has been considerably qualified by modern biology, and even if Darwin's teachings are wholly correct Saleeby considers it an abominable and contemptible perversion of Darwinism to call the actions of the slum and the saloon "natural selection." The slum and the saloon are not natural. Saleeby outlines a programe of practical eugenics and is of the opinion that in practice the following necessities seem clear; every new life, from conception, should have proper nurture; worthy parenthood should be encouraged, unworthy parenthood discouraged, and worthy individuals should be protected from the racial poisons which would make them parentally unworthy. The following scheme is formulated: A. Primary or Natural Eugenics. 1. Positive, the encouragement of worthy parenthood. 2. Negative, the discouragement of unworthy parenthood. 3. Preventive, the exclusion of racial poisons, by which is meant alcohol, lead, syphilis, and any agents that may hereafter be proved to damage the germ plasm. B. Secondary or Nurtural Eugenics. The provision of a right environment for the new life from conception onwards.

As will be observed, the carrying out of a modified system of eugenics involves great difficulties. The encouragement of worthy parenthood and the discouragement of unworthy parenthood must be brought about by education for parenthood. The exclusion of racial poisons seems at the present time almost beyond the realms of possibility. While authorities are not entirely of one mind regarding the evil effects of alcohol and particularly of its effects on the unborn, all are practically agreed that alcohol in excess is a most harmful poison, which wreaks dire damage to the individual and which has a certain baleful influence upon his progeny. But how to exclude alcohol is a question which will tax the brains and energies of the ablest to the utmost. With syphilis, which is known to be a most deadly poison to the human race and which has been responsible for more disease than any other cause, the obstacles in the path, so far as its exclusion is concerned, are more palpably hard to surmount than in the case of alcohol.

But a beginning must be made, and the question of syphilis and alcohol must be grappled with bodily and without that prudery which almost always appears to hamper steps taken in that direction in America and England. We know that syphilis must be abolished or greatly restrained in its range, if a race is to be preserved in even fair health and the fight against syphilis must be relentlessly waged but waged with wisdom. Nurture must commence with expectant motherhood, a branch of practical eugenics which up to the present has been shamefully neglected. Finally, *festina lente* should be the eugenist's motto. The whole question should be better understood before too radical measures are taken.

LACK OF CONSIDERATION FOR OTHERS

That there is on the part of a certain class of men and women a woeful lack of consideration for the rights of others is altogether too much in evidence. Among other unwarranted claims for self, coupled with a total lack of consideration for the rights of others, is the militant propaganda of the suffragette. The indifference for the rights of peaceful, law abiding citizens to exist; to not only exercise the prerogative of the pursuit of happiness, but to hold fast to life and demand protection for his is denied. Outrages are committed regardless of consequences to the innocent. Happily we have not yet, in our land at least, witnessed the heartless indifference to the loss of life and destruction of personal property lately so much in evidence elsewhere. But crime is contagious, as well as is disease, and we can not forecast the future. Let us hold fast and trust that our wives, mothers, sisters will remain sane. The desire to vote and hold office cannot be, is not, denied. The world would be no worse, would probably be better if woman exercised an equal right with man to vote, but the world is too civilized to tolerate revolution, anarchy. We believe that educated, refined women decry militant suffragism.

Then we have with us those who decry smoking in public places. These persons—an infinitesimal number be it said—have no thought for the pleasures of others. We repeatedly see women crowd upon the seats of street cars where it is permissible to smoke when other seats are available. It is rare, however, that the lady protests to the smoker; should she be alone and do so, we believe that the offending cigar would be at once thrown into the street. It is true that the world got along for many centuries without tobacco, and doubtless man was then as happy as now, when the cigar is so much in evidence in public as in the home. If tobacco were really so offensive to so great a number as its few foes assert, why has it so wide a welcome in every country. Its use is not confined to the male sex, for in many lands, our own included, it is appreciated by numerous women, as well as by men. Smoking as a habit is steadily increasing among both sexes, so why should women, because they are women, suffer a special annoyance from its use. We cannot see that non-smokers are immune to troubles, which they charge it of causing. They are as susceptible to nervous trouble and to cancer as are smokers. Smoking will not cease to be either among physicians or laymen. The man or woman who has not acquired the habit profess surprise at its almost universal indulgence, while the habitual smoker gets more joys and greater satisfaction from his cigar than any other habit, and would not forego the pleasures from its indulgence, except under stress, and even then man has been known to spend his last few pennies for tobacco, rather than a sandwich.

There has been another source of annoyance to some of our friends of late. Some of those who are compelled to use street cars are characterized as "end seat hogs" because they retain an end seat which, being unoccupied when they got on, is temporarily preempted and paid for. It is apparent to every one riding on a street car, whether it is crowded or not, that the end seat is the most comfortable. When one enters a railway car and appropriates a vacant seat, he is entitled to retain that seat to the end of his journey, providing he has paid his fare and the car goes to his station. Others may enter after him, but if he occupies the seat next to the window for the sake of the passing view, or a better circulation of air; or if he were seated on the aisle to avoid the sun's rays and dust, would he be expected to give his seat to another because that other preferred that seat to the other, unless the other person were an invalid, an old person or one with a young child? Is it not pure selfishness in a person to ask a passenger to vacate his seat because it will inconvenience him to pass by or crowd him in getting out? We protest that the term is wrongfully applied. Pooh-pooh!

STUPIDITY THE CAUSE OF CRIME

In addressing a convention of alienists in Chicago recently Dr. Henry H. Goddard, of New Jersey, declared that slow and weak minded children should be segregated and receive special education. He asserted that it is from the average stupid child that criminals are recruited. Twenty five per cent of the criminal class belong to the mentally backward; fifty per cent of the prostitutes and seventy per cent. of those in institutions for reform are mentally deficient. He thinks that many feeble minded girls and vicious degenerate boys might be saved if they were segregated during childhood and received enlightened special training.

COMPARATIVE DEATH RATE IN THE WHITE AND COLORED POPULATION

The city of New Orleans, with a total population of 373,000, composed of 272,000 white and 101,000 colored, showed a total death rate for the month of March, 1913, of 20.30 per thousand. The death rate for the white population was 15.66, while that for the colored population was 32.79.

TYPHOID STATISTICS IN NEW YORK CITY

During the year 1912 there were in the whole of the greater city of New York 3,076 cases of typhoid fever, with 400 deaths, as against 3,450 cases, with 545 deaths, in 1911. The number of cases, despite the annual increase of 200,000 in population, was less than in any year since 1908.

A MENTAL HYGIENE CONFERENCE

A mental hygiene conference, the first of its kind ever held, has been held at the College of the City of New York. There has been a public exhibit showing the purpose, methods and results of the new movement in striking form, and leading American psychologists, physicians and educators have attended.

DIGEST OF CURRENT MEDICAL LITERATURE

Pathology of Various Forms of Fibrositis.—In the great majority of the cases of so called chronic rheumatism, the pathological change is in the white fibrous tissues in various parts of the body, and to this condition the term "fibrositis" has been very aptly applied, writes Arthur P. Luff, *Medical Press,* April 16, 1913.

The essential pathological change in fibrositis is an inflammatory hyperplasia of the white fibrous tissue in various parts of the body, associated with exudation and proliferation of the connective tissue elements leading to swelling and thickening of the affected tissues. This condition may undergo absorption and so completely disappear, or, if not suitably treated, it may pass on to organization with the formation of nodules and patches of thickening.

The articular structures proper, synovial membrane, cartilage and bone, are not primarily affected, but the parts implicated are the fibrous tissues of the joints, muscles and bones, especially the aponeuroses and insertions of the muscles, the muscle sheaths in which the muscle spindles lie, the bursae, fasciae, the fibrous ligaments and capsules of the joints, and the periosteum. Such affections cause pain and stiffness in these structures, are especially apt to recur, and are commonly referred to as rheumatic or even gouty in their origin. This inflammatory hyperplasia of the fibrous tissues occurs in patches and is started by exposure to wet or cold, by injury, or by some irritant, microbic or toxic, conveyed in the blood. The inflamed and swollen fibrous tissue is tender, painful on pressure or on movement, and can frequently be felt on palpation, or is evident by the consequent elevation of the skin. Sudden movement of the affected muscles generally causes excruciating pain, while the local pain on pressure is one of the most diagnostic features of these cases.

The indurations may be widespread, but generally are well defined and vary in size from an eighth of an inch to one inch in diameter. They may be situated in the subcutaneous tissue, the muscles, tendons, aponeuroses, the capsules and ligaments of the joints, the bursae, the sheaths of the nerves, and periosteum. The pain is especially aggravated by any sudden movement of the muscle which compresses or stretches the affected fibrous tissues and the sensory nerve filaments.

The microbic causation of fibrositis is probably a rare occurrence, but Ware, *Amer. Journal of Med. Science,* July, 1901, has been able to demonstrate the presence of gonococci in the inflamed muscles of the posterior axillary fold secondary to a gonococcal arthritis of the shoulder joint. In the great majority of cases the inflammatory hyperplasia is due to a toxemia, exposure to cold, strains, etc.

A. Schmidt, *Med. Klinik*, 1910, VI, has endeavored to explain the pathology of muscular rheumatism by the assumption of a neuralgia of the sensitive muscle nerves due to a lesion of the posterior spinal roots, but he admits that in the only case in which he had the opportunity of examining the spinal cord the minutest micrscopical examination failed to reveal any anatomical changes in the roots. Moreover, it is obvious from his paper that he confuses cases of acute or subacute rheumatism with fibrositis.

Heart Disease in Children.—At a meeting of the Royal Society of Medicine, held in London on December 13, 1912, and reported in the *Lancet*, January 4, 1913, a most instructive discussion took place on the treatment of heart disease in children. Dr. Edmund Caultey, a well known authority on diseases of children, opened the discussion, and said that reference to the standard works of twenty five to thirty five years ago showed that the recognition of the frequency of heart disease in children was of comparatively recent origin. Modern methods of treatment were a survival, a modification and an improvement on those of the past. Functional disorders were comparatively unimportant in children. Rest was the most important factor in treatment. Perhaps the most valuable part of the discussion was that contributed by Dr. James Mackenzie. He said that some manifestations of a healthy heart in the young were frequently taken as indications for treatment. As a first step to treatment it was necessary to have a clear idea of what they were going to treat, and the significance of this was brought out by considering what was the essential purpose of a medical examination. This was to determine the prognostic significance of certain phenomena and their bearing on the presence or likelihood of heart failure. It would be shown that this purpose frequently failed in dealing with such phenomena as irregular action of the heart and murmurs. The absence of reliable data had hitherto militated against the obtaining of a prognosis based on trustworthy grounds or a basis for an intelligent therapy. Dr. Mackenzie considered the relation of functional murmurs to heart failure and drew attention to the fact that the cause of the murmur was not the cause of the heart failure, but the heart failure was invariably due to the impairment of the heart muscle. The means by which the impairment of the heart muscle could be detected was shown in many cases to depend not so much on the physical signs as upon the due appreciation of the functional efficiency of the heart muscle. The signs by which one could recognize the functional efficiency of the heart had not received that consideration which was their due, and it was on this account, and also on account of the imperfect teaching of cardiac symptomatology, that a mistaken conception of the meaning of these phenomena was so widespread. Evidence of these misconceptions drawn from personal experience was offered, showing how normal phenomena had been taken as indications for treatment and as a consequence how cardiac therapy had become burdened by many useless drugs and methods. Sir James Goodhart said on one point he was not inclined to agree with Dr. Cautley. He understood him to say that he did not think functional disease in childhood was common, but he was there to say, and he hoped Dr. Mackenzie's paper would be read far and wide, that if he had estimated heart conditions aright, he saw many more cases which were said to be heart disease in children in whom there was nothing the matter, than he saw of heart cases in which there was something the matter. Dr. John Hay in the course of his remarks said that whatever views were held as to the organism causing rheumatism most would agree that it was an infective process by an organism, probably related to the streptococcic group, and he believed infection took place in childhood. So that the outstanding difference between the treatment of heart disease in children and in adults seemed to be that in children one was dealing with an infective process in its inception; while in adults one was dealing rather with the effects of that infection, such as the sclerosis and the myocardial changes. Therefore, the prophylactic treatment was an aspect that needed emphasizing. At the end of his remarks Dr. Hay said he would like to hear the opinion of those present as to the value of alcohol in the treatment of children with rheumatic heart affection. A Viennese professor had said that alcohol should be excluded from the pharmacopeia of children, and he would like to hear what evidence there was that alcohol was actually a cardiac stimulant. It had a short temporary action as a carminative, but his impression was that it was not a true cardiac stimulant. Dr. Walter Carr agreed with some things that Dr. Cautley had said with regard to the use of salicylates in the treatment of rheumatism in children. He had repeatedly seen, in patients who were taking salicylate of soda, a relapse of cardiac rheumatism with the supervention of pericarditis.

Salvarsan-Tuberculin in the Treatment of Lupus.—In an interesting article, Report on Dermatology, by John T. Brown, M.D., in the *Boston Medical and Surgical Journal,* May 1, 1913, we find the following references to lupus treated by salvarsan-tuberculin: Herxheimer and Altmann in 1911 found by chance that salvarsan produced a reaction in tuberculous tissue. It was first observed in syphilitics who had tuberculous lesions. Six cases of lupus vulgaris of the face and extremities were then treated with salvarsan, with the result that there followed a typical reaction in the lupus tissue, with all the clinical signs of an acute inflammation that appeared to be very similar to the tuberculin reaction. Two theories for this reaction were advanced; one that the salvarsan had a destructive action on the tubercle bacilli, setting free tuberculin, which was diffused in the surrounding lupus tissue, thus causing the reaction; and the other that the reaction was due to a primary influence on the cell elements of the miliary tubercle. Later Herxheimer and Altman experimented with a parallel treatment by salvarsan and tuberculin. Bernhardt reports six cases treated by him by the Herxheimer-Altman method, using both tuberculin and salvarsan. The best results were obtained in the cases of ulcerated and serpiginous lupus. There was a remarkably rapid cicatrization of the lupus ulcerations, especially of the more superficial ones, and the view is expressed that so quick a result can be attained by no other method. There was also a quick absorption of the lupus infiltrations, which was most pronounced in the first half of the time of treatment. There was a much less marked therapeutic effect from this method in cases of nonulcerated lupus. This method had also a very marked effect on the course of the lupus of the mucous membranes. A complete healing was attained in a short time without any local treatment. In these experiments arsenobenzol was used intravenously in doses of 0.30 gm., at intervals at first of 9-12 days, later once a month. The tuberculin was used in active doses in the intervals between two administrations of salvarsan.

The conclusions are that the salvarsan-tuberculin method in lupus vulgaris gives the best relative results in the ulcerated forms, causing a rapid cicatrization. That the action of this procedure on the lupus tissue is very evident, many infiltrations disappearing completely, others undergoing a partial absorption. That the Herxheimer-Altmann method should be added to those that have been shown of approved value in the treatment of lupus, but that it should be intelligently combined with other methods.

Indicanuria and Intestinal Autointoxication.—In the discussion of a paper on indicanuria by William G. Morgan at the meeting of the American Gastro-Enterological Association held at Atlantic City, June 3-4, 1912, and reported in the *Boston Medical and Surgical Journal*, wherein it was held that the presence of indican in the urine was an indication of true intestinal autointoxication, the following remarks were made:

Dr. Jacob Kaufman, New York City: Many conditions are described as being caused by autointoxication, but we find that not a single fact has as yet been shown which could prove that there was intestinal autointoxication. The problem remains unsolved. No substance has been demonstrated as acting as a toxine. Indican itself is not considered toxic. In such cases I have sometimes found albumin. A certain amount of intestinal putrefaction is present; and so we have the output of indican, though we may have increased intestinal putrefaction without the indican. While admitting the possibility that such things as intestinal autointoxication exist, yet I do not think that the increased amount of indican can be used as an indication of the increased intoxication.

Dr. Max Einhorn, New York City: These troubles of autointoxication have been greatly exalted by the profession. Many patients are told that they have poisoned their system; they are put on a rigid diet and told they cannot do this or that; and they really become nervous and frightened. I have had some such patients. They are mostly nervous; which condition I relieve by letting them live like other people, not bothering about constipation, diet, exercises, and so on. The whole thing of autointoxication is still a theory, and not practical. The chief thing that we should teach such patients is that they should, must live rationally.

Dr. James P. Tuttle, New York City: I have had many cases of so called autointoxication, and in that type of disease have observed that in the worst cases of chronic constipation it had no relation to indicanuria, and many cases loaded with mucus, casts, etc., had no traces of indican. I found that indicanuria is most always associated with some type of staphylococcus or streptococcus infection. I am inclined to think that in cases of a large amount of indicanuria there is some slight lesion, possibly around the lower end of the cecum. These cases do not need to be washed out with a barrel of water. It is not necessary for a man to have two movements a day. I have seen patients having one movement every two or three days, and they were just as well as though they had more. Do not scare your patients.

Hypodermic Injections of Distilled Water.—The hypodermic injection of distilled water alone produces very remarkable results. Our readers are familiar with Schleich's method of inducing anesthesia in this manner, and now an English practitioner, G. Arbour Stephens, asks, in a letter to the *Lancet* for March 15, 1913, that physicians test, and if possible corroborate some very good curative results he has had in the treatment of syphilis, by the injection, every third day, of six to eight c.c. of distilled water into the subcutaneous tissue of the back. After three doses all the patients looked and felt much better and their ulcers appeared very much cleaner. After each dose the temperature showed a rise supposed to be characteristic of vaccine treatment. In three weeks Mr. Stephens had very gratifying results in ulcers of the cheek and leg and in rupia with abscesses threatening to break. No other treatment was used.

Taking into consideration the curious results obtained in tuberculosis by the hypodermic injection of various agents, along with the experiments of Mr. Stephens, both the physical and the psychic effects of such injections seem to deserve further study.

Prevention of Arteriosclerosis and Heart Disease in Otherwise Healthy Individuals Past Middle Life.—Louis F. Bishop concludes that the causes and prevention of heart disease have been considered as matters of great obscurity and to be in the hands of Providence. He emphasizes the analogy between the universally recognized idiosyncrasy of some persons to particular articles of protein food that give rise in them to symptoms of pain, and the unconscious idiosyncrasy of many others to aminoacids which produce damage without conscious symptoms. Periodic chemical examinations of supposedly healthy individuals past middle life would detect and correct conditions leading to heart disease. The writer inveighs against the abuse of saline laxatives, as they disturb the chemistry of the body and osmosis and tend to produce heart disease, and commends castor oil as the safest and best remedy for those threatened with aminoacid poisoning. Those who have a tendency to heart disease should receive courses of treatment at intervals, such as are given in some of the health resorts of Europe. With proper environment such treatment could be carried out at home.

Migraines After Fortyfive.—T. Clifford Allbutt, in *Clinical Journal*, J. A. M. A., December 21, 1912. A so called migraine persisting after the age of fortyfive or fifty is to be looked on with very grave suspicion indeed. In such cases you will examine the urine and the arteries very carefully; or some indications of a latent cerebral tumor may be hit on. Mistrust migraines, however paroxysmal the attacks may be, however typical the affection may appear if they go on after fortyfive years of age. I am almost disposed to say curtly, that if in a migrainous person the migraines persist in later life, there is probably a screw loose somewhere in his constitution.

SOCIETY REPORTS

THE SIXTY-FOURTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT MINNEAPOLIS, JUNE 16-20, 1913

At the opening session of the House of Delegates, held on Monday, June 16th, Dr. Abraham Jacobi of New York, the President of the Association, made a brief address in which he stated that the honor of his election had enforced very little work, but, on the contrary, profound silence in the various councils of the Association which he thought the presidents should have the right to attend and in which they should have the right to speak. This should be so in the future. As a matter of fact, he had been obliged to ask for invitations, which, indeed, were cordially granted, to attend the meetings of the selectmen. The present House of Delegates should alter this, and future presidents of the Association should automatically occupy a full seat in all the councils, excepting, perhaps, the Board of Trustees. The president should be the chairman of some of them; he should have a veto or deciding vote in case of necessity, and one of his duties must be not only the right but the obligation to talk to the Association more than at present. Many letters have been received by him during the past year expressing the dissatisfaction of the writers with the methods arranged for the business of the Association: the House of Delegates, in the opinion of some, was possessed of more absolute power and autocratic possibilities than the Congress of the United States. It was for the members of the Association and for them alone to select in their various States the personalities of their delegates and to outline their responsibilities. Dr. Jacobi said that if his angry correspondents would pray less and watch more, and would interest themselves in their State and county societies and in the election of their various delegates, they would have less reason to complain of what some of them termed the oligarchy of Chicago and the autocracy of the House of Delegates.

Among the various reports of committees presented to the House of Delegates was that of the Committee on National Department of Health, of which Dr. John B. Murphy of Chicago was chairman. The efforts of this committee had been devoted toward two ends: first, the creation of a Committee on Public Health in the House of Representatives; second, the establishment of a National Department of Health. Their efforts had thus far proved unsuccessful, and the members of the committee stated it should be distinctly understood that if the committee was to promote actively the reorganization of our federal health service, it would be necessary to have some one who could make it his business to gather the necessary facts in support of such legislation, and to put those facts into the hands of the men who must pass on any measure of this kind before it became a law. The Association had not the right to ask one of its members to do this work for the Association at so great a personal sacrifice as would be necessary to make the work effective. Whether one engaged in such work be or be not called a lobbyist was immaterial. The name had come to have a certain stigma attached to it, because of improper methods sometimes used, but if any representative of the Association do this altruistic work in a proper manner on behalf of the Association, he would be a poor representative, and this would be a poor Association, if it were frightened at the bugaboo of a word. The maintenance of representation at the seat of government was necessary if this legislation was to pass. The committee recommended that the American Medical Association either withdraw its support from the bill for a National Department of Health or that it compel greater activity by its agents. The present type of activity was a hindrance to the bill, a harm to the health cause, and detrimental to the medical profession.

A motion was adopted by the House of Delegates, changing the term "members" of the American Medical Association to "fellows." It was emphasized that this implied no change in the relationship of any individual to the organization as a whole, or to the scientific branch or assembly of the American Medical Association, but was simply a change in name.

The first general session of the Association was held in the Minneapolis Auditorium on June 17th, and was called to order by the President, Dr. Jacobi, followed by addresses of welcome by George Edgar Vincent, Ph.D., LL.D., the President of the University of Minnesota; the Hon. William G. Nye, Mayor of Minneapolis; and the Hon. Adolph Olson Eberhart, Governor of Minnesota. Dr. Jacobi then introduced his successor, Dr. John A. Witherspoon, of Tennessee, who delivered an address upon "Our National Health Problem." The opening meeting then adjourned.

On Tuesday afternoon the scientific work of the Association was taken up by the various sections, all the meetings being held in the college buildings on the campus of the University of Minnesota. These section meetings were well attended in spite of the warm weather and many social diversions which the medical profession of the State of Minnesota and the residents of the Twin Cities had so generously provided. This cordial welcome to the visiting physicians extended by the local profession was evident on every hand, and included very elaborate preparations for the entertainment of the ladies. The registration at the close of the meeting on Wednesday was 3,103, and it was stated that this was the largest meeting every held in the Northwest, and the largest held in the West, excepting at St. Louis. In addition to the usual scientific exhibit, there was an interesting plant exhibit of the College of Pharmacy of the University of Minnesota of living medicinal plants. Clinics were also given at the various hospitals, including surgical clinics by Dr. Robert E. Farr of Minneapolis and Dr. John Ridlon of Chicago. Dr. F. H. Albee of New York demonstrated spinal transplantation. Dr. Henry D. Chapin of New York gave a pediatric clinic, and Dr. Joseph Beck of Chicago and Dr. Chevalier Jackson of Pittsburgh held a clinic on throat diseases.

Dr. Victor C. Vaughan of Ann Arbor, Mich., was chosen as the President-elect of the Association, and Atlantic City was selected as the next place of meeting.

Abstract of paper read at the Minneapolis meeting of the American Medical Association, June 17 to 21, on "The Results of Tonsillectomy under Local Anesthesia," by Bryan De Forest Sheedy, M.D., of New York.

All of the one hundred cases reported upon by the reader of the paper were examined several months after operation and no patient under fourteen years of age was operated upon under local anesthesia. There was no grouping of the patients examined as to whether the throat conditions were the result of operation under local or general anesthesia. The enucleation of the tonsils had been performed by some one of the many methods in vogue for the last few years for the complete removal of the gland, and as the operations were performed in practically all the public institutions in New York City, many men of prominence in laryngology were the operators, so that the results could not be attributed to poor technic on the part of one man. The writer arrived at the conclusion that tonsillectomy, so far as removing pathological tonsils is concerned, is a better operation than the old time tonsillotomy, but pointed out that many of the throat defects following the operation of enucleation are due to clumsy and nonsurgical technic.

The writer also pointed out the normal relation of the surrounding parts to the tonsil, and put up a strong argument against the use of sharp instruments for the dissection of the tonsil from its bed, that being the cause of injury to the muscles with resulting deformities.

Of the 100 cases examined months after operation, more than 80 per cent. of the patients had deformed throats. The 20 per cent. of patients with what appeared to be normal throats following the operation were inconvenienced in no way at any time following the operation. Of the 80 patients, 34 complained of speech defects for from one to three weeks after operation, 16 complained of speech defects for more than three months after operation, while 4 had practically lost the singing voice. About 25 per cent. of the patients stated that their throats felt better and that they could speak and sing better after operation than before. Inability to use certain words had continued with 5 per cent. of the patients for more than six months after operation.

The variety of deformities following enucleation were classified as follows:

(1) The pillars on both sides had disappeared, with the soft palate tightened to such an extent that the opening at the nasopharynx was narrowed.

(2) The pillars on both sides had grown together.

(3) The anterior pillar had wholly disappeared with a large amount of cicatricial tissue deposited on the posterior pillar.

In the four patients whose singing voice had been seriously affected the posterior pillar had disappeared through amalgamation with the anterior or with the lateral wall of the pharynx.

The reader emphasized the fact that he did not think the last word had been said in regard to tonsil enucleation, and proposed as a remedy for preventing the unsatisfactory throat results an operation for removing the tonsil by what he called the "Eversion Method," and with charts and diagrams pointed out that the capsule of the tonsil is simply a bag, the bottom of which may be pulled through its mouth, so that its inner surface becomes the outer, and that if the capsule with its glandular tissue is everted and a snare placed on, removing the tonsil with its capsule complete (there being no dissection and therefore no injury to the muscles surrounding), there would be no deformities.

The exceptions to the rule presented, viz., that the tonsil will evert on traction, were:

(1) Those cases in which the capsule was bound down to the surrounding tissues by previous attacks of inflammation.

(2) Those cases where the capsule was very much contracted and contained cicatricial tissue only.

(3) Those cases of hypertrophied tonsils which had everted themselves and the tonsil was found everted when the patient applied for treatment.

The points advanced in favor of the procedure were:

(1) Simplicity of the operation.

(2) Practically no hemorrhage.

(3) Little or no deformity following the procedure.

(4) Only three instruments necessary for the operation, viz., tonsil tenaculum, blunt pointed tonsil knife, tyding snare.

THERAPEUTIC PROGRESS

Strontium Lactate in Bright's Disease.—C. L. Williams, in discussing a paper by H. F. Harris on Rest in Nephritis at the meeting of the Medical Association of Georgia, April 16-18, 1913, reported in the *Journal American Medical Association*, May 31, 1913, declared that during the past year he had had four or five cases of Bright's disease. The first patient was sixty-five years old. He was given strontium lactate in conjunction with rest and liquid diet. After doses of 45 to 60 grains of the strontium for two or three days there was no albumin in the urine while the man was up and about. This patient was greatly improved for several months, but through carelessness in diet, developed uremia and died. Strontium lactate was used in all of the cases with good results.

Dysmenorrhea Relieved by Nasal Treatment.—At a meeting of the American Gynecological Society, May 6-8, 1913, held in Washington, D. C., a paper upon the above topic was read by Joseph Brettmer of New York. In the discussion as reported in the *Journal American Medical Association*, Emil Mayer, also of New York, stated that occasionally a young woman came to his office with intranasal difficulty. Being interested in the question of painful menstruation, he elicited from some of them that they had suffered a great deal. By treatment of the nasal conditions he was able to benefit them. As to amenorrhea, he had seen several young girls who did not menstruate at all for three or four months, but after applications to the nose, menstruation was established.

Adamon, a Substitute for Valerian in Solid Form.—H. Gudden summarizes his article thus: "Adamon furnishes a harmless, effective sedative, the first practical substitute for valerian in solid form, which makes possible a course of treatment of long duration, because of its tastelessness and because it does not affect the gastrointestinal tract. The choice of the name is also a happy one, since it does not arouse suspicion of bromides or valerian, a fact which should not be undervalued for patients who have been saturated with either, and demand a new sedative."—*New York Medical Journal*, March 29, 1913.

Ergot in Uterine Hemorrhage.—Hirsch, *Monats für Geburtshilfe und Gynakologie*, April, 1913, declares his belief that menorrhagia and metrorrhagia are not caused by variations in ovarian secretion, but by decreased contractility of the uterine muscles. He therefore treated 200 cases by injections of ergot directly into the uterine wall. Excellent results were obtained, particularly in chronic metritis and preclimacteric hemorrhage. The treatment is contraindicated in acute inflammatory conditions and new growths of the uterus and adnexa.

Atophan in the Treatment of Gout.—Dr. G. D. Kahlo, *Boston Medical and Surgical Journal*, May 1, 1913. This is a brief report of the results of clinical experiments in the use of atophan (phenyl cinchoninic acid) in forty cases of abnormal uric acid metabolism associated with gastrointestinal diseases. The author believes that we have in atophan a very valuable therapeutic agent, more effective and free from objectionable features than preparations usually employed for such purposes.

Has Pituitary Extract a Harmful Effect on the Child?—Spaeth briefly mentions some cases by other observers in which harmful effects appear to have been exerted. He then gives an instance of his own, where the child died a half hour after birth. In this individual the heart beat was visible, but very slow. The autopsy showed nothing positive. The death was evidently due to action upon the heart muscle.—*New York Medical Journal,* March 29, 1913.

Coagulation of Blood during the Death Agony.—Franz Rost, *Centralblatt für Allgemeine Pathologie und Pathologische Anatomie,* February 15, 1913, on account of its importance from a medicolegal point of view, undertook to determine whether the clots found at autopsy were formed before or after death. As a result of his experiments he concludes that many of these coagula must have formed during the agonal period.—*New York Medical Journal,* March 29, 1913.

Nitrous Oxide-Oxygen Anesthesia.—Leigh and Culpepper (*Va. Med. Semi-Monthly,* February 7, 1913) state that nitrous oxide is the real anesthetizing agent when used in conjunction with other anesthetics. "They infiltrate the tissues with novocain for the purpose of preventing shock and lessening the pain from the sutures after the operation and relaxing the muscles overlying the peritoneum."

Beet Sugar in Artificial Feeding.—Bendix, *Zeitschrift für Kinderheilkunde,* April 26, 1913, declares that beet sugar is to be preferred to milk sugar in treating cow's milk for infant feeding. It is cheaper, an item to be considered, particularly among the poor, and in addition infants increase in weight more rapidly than when fed milk sugar. There is less intestinal fermentation and better stools.

Hediosit.—A pleasant tasting nutrient and sugar substitute for diabetics. It is easily oxidized and is utilized as food. In addition, it possesses the property of considerably reducing the excretion of the sugar derived from other sources. There is no increase in glycosuria; ordinarily it is greatly reduced.

Injury from Narcotics in Treatment of Morphine Addiction.—Mueller, *Berliner Klinische Wochenschrift,* April 21, 1913, protests against a recent work which advocates keeping the patients under the influence of scopolamin in treating them for morphine addiction. He insists that any narcotic is not only superfluous, but often does great harm under such circumstances.

Tuberculin.—Shaw, *British Medical Journal,* May 3, 1913, states that like all vaccine treatment, tuberculin, in his opinion, is capable of effecting a change in the aspects of the disease. But, as he states further, it has never proved experimentally that such changes are curative; the alleged curative changes can be explained on anaphylactic grounds.

Visceral Organisms.—Carrell has succeeded in removing the heart, lungs, diaphragm, stomach, liver, pancreas, spleen, kidneys and small intestines from a cat *en masse,* and by means of transfusion, artificial respiration and feeding kept these visceral organisms alive from six to more than thirteen hours properly functionating. This remarkable piece of work promises to open new possibilities in physiological research.

BOOK REVIEWS

The Narcotic Drug Diseases and Allied Ailments, Pathology, Pathogenesis and Treatment. By GEORGE E. PETTY, M.D. Philadelphia: F. A. Davis Company, 1913. Price $5.00 net.

The author of this work states in his introduction that it is his conviction, reinforced by long experience, that drug habitués are in most cases the blameless victims of disease, and that therefore these cases are to be treated as a disease, a toxemia, of drug, auto and intestinal origin, the management properly belonging to the field of internal medicine rather than to neurology. The author broadens the usual scope of such works by including in addition to treatment of narcotic addiction, that for acute ailments occurring in narcotic and alcohol habitués and to the withdrawal of narcotics during the acute ailments; also the management of infants born of drug using mothers, the treatment of delirium tremens and the "sobering up" of acute alcoholism. With such a wide range of study a large book results—some 500 pages. The management and treatment is of course the most valuable part of the work, although pathogenesis is fully discussed.

The chapter devoted to physical training will be found of particular interest. In treatment, elimination very properly receives the greater attention. Second, is to be considered drugs, such as hyoscine, scopolamine, daturine, sparteine, gelseminine, pilocarpine, asparin, ergot, quinine, etc., to all of which a full discussion is given.

To all physicians interested in the treatment of drug addiction—and what physician is not—we heartily recommend this work.

Massage: Manual Treatment, Remedial Movements, History, Mode of Application and Effects; Indications and Contraindications. By DOUGLAS GRAHAM, M.D., Boston, Mass., with a Chapter on Massage of the Eye by DR. A. DARIER, Paris. Fourth Edition Revised and Enlarged, with 75 Illustrations. Philadelphia and London: J. B. Lippincott Company.

The first edition of this work appeared in 1884 at a time when massage was only occasionally resorted to in treatment. Since then, however, its use has been more generally recognized, until to-day it plays an all important part in many morbid conditions, surgical and medical. Doubtless Dr. Graham has had much to do with this growing popularity. That his book has reached a fourth edition is evidence of its appreciation by the medical profession. The work has been thoroughly revised and a number of chapters rewritten, so that all of what is known of the scientific use of massage in the treatment of diseased conditions is included. Of special interest we find that of the discussions in Chapter XXIV on massage in connection with Bier's hyperemic treatment and the opsonic index.

We cannot but believe that the proper use of massage in disease will bring about improvement in a wide range of cases. And no other work so thoroughly points the way as does this.

Golden Rules of Diagnosis and Treatment of Diseases, Aphorisms, Observations and Precepts on the Method of Examination and Diagnosis of Disease, with Practical Rules for Proper Remedial Procedure. By HENRY A. CABLES, B.S., M.D., Professor of Medicine and Clinical Medicine of the College of Physicians and Surgeons, St. Louis. Second Edition, Revised and Rewritten. St. Louis: C. V. Mosby Company, 1913. Price, $2.25.

This is a small volume, some three hundred pages, intended as a quick means of ready reference for the physician that at the moment has not the time for more extensive reading. It can in no sense supply a need for an exhaustive work on diagnosis or treatment. The information given in so far as we have examined it is correct enough, but it is too meager. For instance, under Diseases of the Stomach, including gastric ulcer, gastric cancer, gastritis, hyperchlorhydria, hematemesis, will be found diagnosis and treatment in seventeen pages. But, as the author declares in his preface, it is intended for a quick means of reference, and as such will serve an admirable purpose

Laboratory Methods, with Special Reference to the Needs of the General Practitioner. By Drs. B. G. R. and E. G. C. Williams, with an Introduction by Victor C. Vaughan, M.D., LL.D. Second Edition. Illustrated with 43 Engravings. St. Louis: C. V. Mosby Company, 1913. Price, $2.50.

We reviewed the first edition of this work July, 1912. and then stated that "Chemical and other analyses have always been excursions into an almost totally unknown portion of the world of science, when the explorer has been a physician, whose diploma dates back twenty years or often less. The general practitioner has been too busy to study technic and reactions, or to learn their significance, and thus a most valuable aid in diagnosis has been to them a closed book. But we are developing in all branches of science, and he who would keep up with progressive methods and benefit from advancing thought must equip himself for the greater demands of the day." One year is but a brief period, but in this age it represents marvelous strides in medical and other sciences, as is evidenced in a comparison of this the second with the first edition of this work. We commend the book to all medical men.

Vaccine and Serum Therapy, including also a Study of Infections, Theories of Immunity, Specific Dagnosis, and Chemotherapy. By Edwin Henry Schorer, B.S., M.D. Dr. P. H., formerly Asst. Rockefeller Institute for Medical Research, New York City, etc., etc. Second Revised Edition. St. Louis: C. V. Mosby Company, 1913. Price, $3.00.

This revised second edition of Dr. Schorer's work will be welcomed by all interested in the treatment of disease, medical and surgical. It includes laboratory findings as diagnostic helps, chapters on immunity, specific diagnosis, specific therapy, specific chemotherapy, treatment and prophylaxis in different infections, with illuminative illustrations, and an appendix description of spirocheta infection, infections with malaria parasites, etc. Altogether this will prove a valuable addition to the literature on vaccine and serum therapy.

New Aspects of Diabetes: Pathology and Treatment. By Professor Dr. Carl von Noorden, Professor of the First Medical Clinic, Vienna. Lectures delivered at the New York Post Graduate Medical School and Published by Authority. New York: E. B. Treat & Co., 1912.

We have in this small work a continuance of a series of lectures delivered by Professor von Noorden in this country in 1905, since when many new questions concerning diabetes have been worked out; theories of growing importance. Our readers will know to what extent the profession is indebted to Professor von Noorden in these studies.

Here we have discussed the Source of Sugar, the Control of Sugar Formation and its Disturbances, Theory and Therapy of Diabetes and Acetonuria, Its Influence in the Treatment of Diabetes Mellitus. This book should be widely read.

PAMPHLETS AND REPRINTS

MUNICIPAL ORDINANCES, RULES AND REGULATIONS, PERTAINING TO PUBLIC HEALTH. By John W. Trask, Asst. Surgeon General, United States Public Health Service, Government Printing Office, Washington, 1913.

METHOD FOR DETERMINING THE TOXICITY OF COAL TAR DISINFECTANTS. TOGETHER WITH A REPORT ON THE RELATIVE TOXICITY OF SOME COMMERCIAL DISINFECTANTS. By Worth Hale, Government Printing Office, Washington, 1913.

THE FRIEDMANN TREATMENT FOR TUBERCULOSIS. A Report on the Present Status of its Investigations by a Board of Officers of the Public Health Service, Government Printing Office, Washington, 1913.

TYPHOID FEVER AT ALBANY, N. Y. An account of the Recent Outbreak due to use of Raw Hudson River Water, following Flooding of Filtration Plant. By Theodore Horton, Chief Engineer, New York State Department of Health, Government Printing Office, Washington, 1913.

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ORIGINAL ARTICLES

DEGENERATIVE DISEASE OF THE HEART MUSCLE; ITS CAUSES, TYPES AND THE DIAGNOSIS*

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The statement is attributed to an eminent clinician that concerning the diagnosis of cardiac disorders, inspection, palpation, percussion and judgment are far more valuable in so far as the patient's welfare is concerned than all other methods of diagnosis, and that the average case would probably receive more appropriate and better treatment if the physician was unable to auscult for murmurs and other exact evidences of valvular disease. This is, of course, based on the assumption that myocardial and not endocardial factors are the more important in cardiac disorders.

Whether or not this very broad and general statement is entirely true, it at least sufficiently indicates one great fact, namely, that more is afforded by the general signs of cardiac disease than by a minute study of the purely cardiac mechanism alone.

We all realize that the real question in any given case of heart disease is not what valvular defects are or are not present, but, to put it roughly, Is the heart able to do its work? In other words, what is the condition of the heart muscle, what are its possibilities? On these factors rest prognosis and correct treatment.

In every case of heart disease, barring embolism, thrombosis and certain rare nerve changes, which indeed also usually so act, death results directly or indirectly through muscle failure. Aside from the auscultatory signs of endocarditis nearly all the evidences of heart disease are due to defective muscular action. Dyspnea, the pain, the irregularity, the competence or incompetence reside almost wholly in the condition of the heart muscle.

*Read before the Stamford Medical Society, May 13, 1913

Although heart muscle disease is almost universally discussed in text books, in lectures and even in the recent literature of medicine under the heading of myocarditis, but relatively few cases show actual inflammatory alterations in the muscle, so that the term of myocarditis as applied so universally is usually inaccurate and misleading. It is partly to correct this misapprehension which I believe has led us into some serious errors of treatment that this paper has been prepared.

It is true that in certain conditions true inflammatory changes are found in the heart. In some instances of endocarditis, for example, the inflammatory process extends outward into the myocardium, also in occasional examples of pericarditis the same process may occur. Both are, however, relatively rare. In septic myocarditis following phlebitis or embolism of the heart true inflammatory changes are set up in the muscle—these also are infrequent. In acute secondary syphilis, as we have shown (*N. Y. State Medical Journal,* June, 1913), true inflammatory changes are present, and it is also possible, though certainly unusual, that inflammatory processes orignating in the walls of the coronary vessels may thus extend into the muscle of the heart.

These changes are all unusual conditions, rarely diagnosable, and are more lesions of curiosity than of real clinical interest.

Autopsies show on the contrary that the cause of acute dilatation of the heart in post diphtheritic conditions, in certain cases, usually highly febrile ones of rheumatic fever, that which occurs in typhoid fever and in pneumonia, no less in chronic nephritis, in diabetes, in tertiary syphilis and in tuberculosis, in all of these and many more the muscle lesion which terminates the picture is a degenerative and not an inflammatory process. Even in those numerous instances in which fibrosis of the heart muscle has taken place, pathological study shows these changes to be introduced or preceded by degenerative processes in most cases.

Myocarditis is therefore almost always a misnomer and should be superseded by the more correct appellation of myocardial degeneration.

There are many forms and varieties of degenerative disease of the heart muscle, but analysis shows that the most frequent and most important types are but relatively few in number. To these alone we shall devote our attention this evening, since we are as clinicians more interested in the consideration of frequent and important changes rather than in the rare and curious types of myocardial disease.

Six years ago I made a study of the degenerative types of myocardial disease (*N. Y. Medical Journal*, February 9, 1907), and in the course of this paper I shall frequently refer to the case analyses which I reported at that time.

The study was founded on a series of 457 consecutive cardiac cases which died either with or as a direct result of the cardiac lesions. The cases were taken consecutively from my personal autopsy services at Bellevue, Harlem, Hood Wright and Montefiore hospitals: 330 of the 457 cases showed degenerative types of heart muscle; 214 cases showed chronic endocarditis, which was complicated and usually terminated in 142 instances by disease of the muscle: 51 cases of acute endocarditis and 66 of pericarditis were included. These were complicated 44 times with myocardial lesions of a degenerative character.

This list did not include instances in which the muscle degeneration appeared only as a subsidiary factor or in which it was of but little or no clinical import.

The four chief types of degenerative changes only were analyzed.

Albuminous or acute parenchymatous degeneration probably occurs most frequently of all, though at autopsy this may not be apparent, because by the time the patient has finally succumbed to the disease the type of the degeneration has changed, and also because this is the most recoverable of all the types of myocardial degeneration.

Albuminous degeneration may be said to occur only in an acute form, and usually only in acute conditions. It is essentially a result of toxemia. It occurs frequently in such conditions as pneumonia, septic poisoning, in acute nephritis, yellow atrophy of the liver, and it may develop in the course of any of the acute fevers, infections or intoxications. It is manifested by a chemical change in the albumin of the muscle cells. It terminates either by resorption and healing, which may be complete or by a transformation into a fatty degeneration, such, for example, as occurs in the toxemia of diphtheria. Physiologically the effect of this change is to limit or alter the all important conduction power of the muscle fibers, to decrease contractility, and thus marked alterations in cardiac rhythm and great diminution in the power of contractility follow. The greatest danger in this form of lesion is that acute dilatation may occur either with the result of sudden death or of more or less permanent disability. This type of lesion was found in 90 of the 330 cases showing myocardial degeneration.

Fatty degeneration is found mostly following such prolonged toxic conditions as typhoid fever, long standing tuberculosis, or in arsenical or phosphorus poisoning, and it is seen in its most acute but absolutely typical type in post diphtheritic disease. It also follows coronarysclerosis or other conditions such as diabetis melitus, Addison's disease or pernicious anemia, in which the nourishment of the heart muscle is defective.

Healing in this type of muscle degeneration is very limited and incomplete, once it has become firmly established. It may be succeeded by fibrosis, by cardiac aneurysm and the like, and it is characterized clinically by more or less permanent defective contractility of the heart muscle, by delayed or abnormal transmission, that is, by clinical irregularities of rhythm and force, and throughout there is always a more or less imminent tendency toward dilatation. This change was found the predominating alteration in 102 cases. It is so frequently associated with fatty infiltration that the two lesions cannot be absolutely separated even anatomically, though clinical distinction would be most desirable. The association of fatty degeneration and infiltration was found in 188 cases.

This type of muscle degeneration is improperly named fatty degeneration because the degeneration of the heart muscle cells is not brought about by a deterioration into true fat, but instead into a chemical substance resembling fat in some of its reactions, though in no way like fat in its physiological import. I make this explanation because a proper understanding and treatment of this type of degeneration cannot be based on the assumption that we are dealing with the deposit of fat globules in the muscle cells—it might be much more correctly called a chronic albuminous degeneration of the heart muscle.

This type of degeneration is the most serious and most insidious form with which we have to deal. It terminates in numerous instances with a sudden and unexpected dilatation of the heart where perhaps no lesion has been expected, and even where it has been suspected treatment may, in my experience, be largely without avail. In my opinion these cases do very badly under the Nauheim treatment, and many of the current measures of therapeusis correctly and successfully employed in other forms of cardiac degeneration fail here or do actual harm. The margin of reserve power in these hearts is very narrow and uncertain.

Fatty infiltration is a very frequent condition. It is difficult to differentiate clinically from the other types of cardiac degeneration unless one holds well in mind the conditions which cause it. It, unlike fatty degeneration, with which nevertheless it is frequently associated, has strictly to do with the deposit of true fat, but the infiltration does not take place in the muscle cells, but in the areolar connective tissue between them, so that the heart muscle suffers only as a result of the compression of its fibers and not from inherent muscle disease. It occurs particularly frequently in well to do and physically indolent subjects. It is to be expected in those who are overly nourished or those who exercise insufficiently to burn up especially the fats, sweets, and starches which enter the body as food. It is a conjoint result of over alimentation and under oxidation. It is very frequent in brain workers, especially those who combine mental labor with over feeding and deficient exercise—it is a disease of prosperity, of the automobile and not of the foot trail.

Healing takes place readily and simply by the absorption or burning up of the over deposit of fat. These cases do well at Nauheim, at Muldoon's, on hunting trips, at the golf links or by the trout stream. The chief danger rests in the result of too much stress or strain put upon the heart before the fat has been resorbed and before the muscle has regained its tonicity and contractility. Proper treatment is followed by the most brilliant results seen in the management of any form of heart muscle disease. On these cases are founded most of the reputations of those spas and resorts recommended for cardiac disease.

While all this may honestly be said of fatty infiltration of the heart, in prognosis it must never be forgotten that a large percentage of instances are complicated by other types of degenerative disease when they come under treatment.

We must not make the grave mistake of suspecting the presence of this type of heart disease only in the obese. True, it is almost always present to a greater or less degree in the overly fat individual, even in the "Prize Baby," but it is also found post mortem in many of those who are not obviously fat. It is very common among women, who while they do not perhaps over eat, do select their foods improperly and exercise insufficiently. Roughly speaking this is not the heart of the meat eater, but that of a starch, sugar and fat diet. It is common in the retired athlete, who with his habits of the training table has failed to keep up those of the field. The heart in this condition is large, it may have the appearance on the X ray screen or from percussion of a hypertrophied heart, but physiologically it is a very different matter.

Brown atrophy of the heart is a much less common condition and one which is much less generally recognized, indeed in some otherwise very complete considerations of this subject it passes entirely unmentioned. It occurs as an apparently physiological state in old age—it is the normal heart of senility, but it is found in many other conditions naturally, especially those which more or less simulate senility; thus it is found in chronic arteriosclerosis of the heart, that is, in chronic coronary disease. It is always a chronic condition. It appears in various long standing toxic conditions, especially those of the less aggressive types, as in chronic lead, alcoholic or tobacco poisoning, in diabetes, or nephritis, morphinism, or chronic tuberculosis. I have reproduced the lesion in experimental animals by causing a chronic toxemia, and it is to be expected in starvation. It may apparently follow over work of the heart, as in exophthalmic goitre and other conditions in which a more or less permanent tachycardia is found. Thus it occurs, for example, in certain neuroses.

Unfortunately it may occur as a complication in many other forms of heart disease, as in fatty degeneration, as a sequence of albuminous degeneration, and especially in cardiac fibrosis. As the name would indicate, the typical picture of the disease is that of a small sized heart, but this may depend on the associated changes, and not uncommonly one finds the change in dilated and even as a closing chapter in hypertrophy of the heart.

The lesion is incurable, and it may be quite correctly looked upon as a senility, premature or otherwise, of the heart. In general, as one must conclude from this statement, the treatment must be that of a conservation of the heart; it cannot be cured, it must be endured, and life must be adapted to the brown atrophied heart, not it to life. The change is a primary one in the albumins of the heart fiber, which as a result becomes more or less charged particularly about the nucleus, with a fine brown pigment. The muscle cells or fiber is atrophied, and consequent loss in its physiological possibilities occurs. This condition has interested me very greatly, and I have made a quite extensive study of it, particularly as to its microscopic characteristics, but thus far but little beyond a diagnosis of the condition seems possible. It was found in my series but 62 times.

Cardiac fibrosis is a very frequent condition; it is not a primary one, however, but develops secondarily as a result of any process which causes the destruction of tissue. Essentially it is a scar formation, just such as occurs anywhere after tissue has been destroyed. The fibrosis is primarily a reparative process in intent, but even good intention in this respect as in some others does not mitigate evil results.

The condition is, of course, very frequent in syphilis, especially after gumma formation. It follows coronary disease, endocarditis and pericarditis; it occurs in ischemia of the heart, after albuminous and fatty degeneration, and it may even appear in fatty infiltration, where perhaps it occurs as an attempt at repair and conservation after dilatation. It also develops in arteritis and arteriosclerosis, and in such universal fibrotic conditions as hepatic cirrhosis, polyneuritis, chronic interstitial nephritis and the like.

It is the essential factor in most instances of cardiac aneurysm, and though the process is undoubtedly, in most cases at least, an attempt at conservation, it eventuates in the substitution of an inert tissue for the wonderfully facile muscle tissue of the heart.

I have gone thus extensively into a discussion of the pathological anatomy of the degenerative types of heart muscle disease because I believe that for proper treatment, a foundation must be laid on a knowledge of these essential changes. I have not touched on the gross appearance of the types of muscle degeneration nor intimately on the interesting microscopic structure, because these are matters which I do not believe are essential for the correct understanding and management of these cases. I have attempted to go rather fully into the question of the etiology of each of these varieties because I believe this to be a matter of the greatest possible practical importance, and for these reasons: It is in my experience almost impossible to differentiate clinically between these various types of heart muscle disease; there are, it is true, certain fine points of differential diagnosis which we shall presently consider, yet I hope that I have shown how very desirable and necessary it is to differentiate the various forms so that prognosis and treatment may be correctly applied.

It is my belief, founded on studies in pathological anatomy with associated clinical observations that this very desirable end can be to a certain measure accomplished by a thorough review in each instance of the dominant or probable chief etiologic factor, and then by applying the law of probabilities to draw therefrom conclusions as to the most likely character of the changes in the heart muscle. This having been done, we are at least better prepared to outline a properly based treatment. This is not, I grant you, a very scientific or definite justification of any specific method of treatment, but have you, I ask, anything more certain to offer in regard to the differential diagnosis of the degenerative diseases of the heart muscle?

The Symptoms: In practically all the various types of cardiac muscle disease the group of symptoms which appear are very similar. Minor differences develop, however, and these particulars will be later considered, but in the main the statement will be found to pertain. It seems curious and rather unusual that in both acute and chronic cases of degeneration of the heart muscle the symptoms which appear are almost identical, differing practically only in the manner of onset or perhaps in the passiveness or aggressiveness of the signs, though not in the essential character, which remains curiously persistent in nearly all cases.

Among the most constant, and probably the very earliest symptom of all is *dyspnea*. This sign is almost invariably present in greater or less degree in every case. The grade of the dyspnea, of course, varies from very slight to very severe. It has been my custom to attempt to classify this symptom inasmuch as possible by applying certain rules. Thus, when the dyspnea only appears after unaccustomed exercises (for that individual), it indicates that the failure of the muscle is less grave, but when it appears in the course of such exercise, mental or physical, to which the patient is accustomed it becomes a much more serious sign. To illustrate, it is entirely to be expected that one of sedentary habits should complain of dyspnea when he is called upon to run after a car or to rapidly climb stairs to which he is unaccustomed, but when the symptom develops in the course of the ordinary walks of the patient or during such mental stress or excitement to which he is daily accustomed, it becomes a symptom of disease and no longer an indication of lack of training. On the other hand, when shortness of breath develops in a laborer in the course of those exertions to which he is habituated, it is significant, even though that exercise might be expected to normally cause painful dyspnea in you or I, unaccustomed by training to such exertion.

A third classification of dyspnea is also made, and I utilize this to detect a tendency toward this symptom. The patient is requested to trot, standing in place for one minute's time—now each of us is accustomed to sustain our own weight and to occasionally run—this is not a severe test and should not cause shortness of breath in any individual whose circulatory apparatus is well compensated, but when dyspnea does thus appear it does not necessarily indicate actual decompensation in itself, but simply that the heart muscle is beginning to approach its margin of safety.

In so far as I have been able to determine, no suggestion as to the form of the muscle degeneration is to be derived from the symptom of dyspnea, which occurs in practically all alike. It is, of course, more apparent in some cases than in others, and in unsuspected albuminous or fatty degeneration, all tests as to its presence are to be applied with great care. You all know the very disastrous results likely to follow in a case of post diphtheritic myocardial degeneration—indeed the first obvious symptom of dyspnea in such instances may be acute dilatation, or rupture with immediate death. In such instances, the sign may be sought for by such safe methods as passive movements in bed, later active movements of the arms or legs while still in the prone posture, and if the sign thus appear it is, of course, of very grave significance.

Cyanosis is another very frequent and very early sign of a degenerated heart muscle. Like dyspnea, it may vary enormously in its degree, and unlike dyspnea its degree and time of appearance is of more definite prognostic import. Cyanosis is, of course, most evident and most marked in the peripheral portions of the body, especially in the hands, feet and face. Secondary points of frequent occurrence are shown in the capillary varicosities which appear at the costoabdominal equator.

Skin or superficial cyanosis is symptomatically a very evident sign and the cyanosis of the deep viscera is but little less so. It is commonly manifested to us only by symptoms, though the use of the ophthalmoscope may show a true internal cyanosis. Swelling and tenderness of the liver and spleen, symptoms of gastric indigestion, hyperacidity, delayed gastric or intestinal motility, flatulence and constipation are indications of these changes in the deep organs, and when blood appears in the gastric, intestinal or bronchial secretions, it is, of course, but an ocular manifestation of the change which we must know from the symptoms alone to be taking place. Hemoglobinuria or hematura is a not infrequent indication of deep cyanosis. So also are scanty and low specific gravity urine. When the cyanosis takes on a leaden hue in the visible portions of the body, it is, of course, a sign of present or impending decompensation, and when with or without this, a marked drop in the surface temperature occurs, the condition is clearly more developed. Complaints of cold hands, feet and nose are indications of this peripheral stasis which is the factor back of the cyanosis.

Of course, many if not all of these deep symptoms may also appear in instances of engorgement of the deep viscera, when due to local or general inflammatory states, but if the whole aspect of any case be taken into consideration, but little opportunity for error in this respect is possible.

Very closely allied to the symptom of cyanosis is *edema*. As a matter of fact, edema may be in some instances an earlier indication of approaching cyanosis than change in the color itself. Every one, even laymen, know the significance of swollen feet and ankles, other visceral disease, of course, wanting. The edema in degeneration of the heart muscle is determined for its location mostly on postural conditions, and remains independent of such local lesions as ascites pleural effusion or facial edema, without generalized edema—it is the generalization following along mechanical lines which indicates circulatory defects of a probable central type.

Although not so universally recognized, *pain* is almost as frequent a sign as those previously mentioned. Alexander Lambert in two articles has recently paid particular attention to this frequent symptom, and he has vividly called our atteniton to the fact that we have in the past probably absolutely neglected this very important sign, or at least underestimated its value. We are too much accustomed to ascribe pain in the cardiac region to neurasthenia, to myalgia, to the reflected pain of the Heads zones and to accept pain as indicative of cardiac disease in only those instances in which it is transferred in a particular direction, down the arm, etc.; in other words, we are likely to recognize only as cardiac pain that which is anginal in character and of a very definite type, and we demand that it be associated with such additional symptoms as collapse, fear of death, cold sweat, etc.

Clinical observation of cases which subsequently came to autopsy has convinced me that precordial pain is present in greater or less degree in most cases of defective heart muscle. In but a small percentage of cases only is the pain of a truly anginal character, though I believe that the pain of dilatation is by no means infrequently of an identical type. In a far larger number of cases, however, pain is located behind the sternum or at the ensiform, and it is not definitely reflected, though often transferred to the small of the back. The most frequent type of pain in these cases of heart muscle degeneration is a sense of discomfort, of swelling or bursting, varying in degree, more or less definitely according to the severity of the lesion.

I am not as yet prepared to give the mechanism of this pain, whether or not it be solely due to dilatation; I am rather inclined to think not, but my experience has led me to feel that pain in the region of the heart is more frequently due to some disease of the heart than otherwise. It must not be looked for as only spasmodic in character, often it is complained of as a persistent sense of unpleasant weight or fullness.

Precordial tenderness is a sign closely allied, of course, to that of cardiac pain; they appear rarely entirely dissociated, and nearly in all instances of cardiac pain due to muscle degeneration associated with more or less tenderness.

The tenderness may be so severe as to make percussion outlining of the heart difficult, and at times pain may be excited by the blow of the percussing finger, and yet more or less relieved by firm, broad pressure. I make no mention here of the zones of hypersensitiveness. "Heads zones," which appear in degeneration and also apparently quite as frequently when the heart lesion is an inflammatory one as in endocarditis, new growths of the heart and the like. Head's zones, though they may be demonstrable in cases of myocardial degeneration, are not very constant unless actual physical dilatation has taken place.

Insomnia, or sleeplessness, is a frequent symptom to appear in disease of this kind. It seems in many instances to be independent of the symptom of wakefulness, dependent on the fact that the prone posture is unfavorable to rest in many cases of approaching cardiac decompensation. In other cases it seems to be either dependent upon this factor or closely allied to it. It develops in many cases in which lying down excites no dyspnea and in which cyanosis of the peripheral parts of the body is not obvious. It is manifested in a good many instances by disagreeable dreams, by "Night starts" or by broken and troubled sleep. It may, of course, be dependent upon dyspnea or upon cardiac pain, but on the other hand it may be entirely independent of these factors. It is my impression that in many instances it is caused by a defective and ill adjusted cerebral circulation, by an abnormal grade of cerebral anemia, which added to that physiological to the sleeping state has the contrary effect of producing cerebral irritation and consequently sleeplessness.

Much stress has been laid by some on the character of the *heart sounds*. Of course, we all recognize that when the heart muscle is extensively compromised the first or muscle tone is of poor quality, sometimes murmurish, prolonged, and that this is due to the same causes as its deficient contraction. It may be followed by a valve tone of diminished vigor and of altogether altered character. Lambert has called particular attention to the character of these sounds and attempts to differentiate between the various types of degenerations from the heart sounds. We all recognize that given a fatty degenerated muscle the muscle tone is prolonged, of a peculiar flappy or flabby quality, and the subsequent valve closure is flappy and uncertain. In Brown atrophy, on the contrary, though the first tone is abnormal, it is not so prolonged or soft and it is followed by a more vigorous valve closure. As I have stated, I am not myself yet prepared to attempt to differentiate the various types of myocardial degeneration from the character of the sounds, but I am prepared to say that I do feel that the character of these sounds is in most cases suggestive, at the least, of a defective heart muscle. This is particularly true when after exercise the muscle tone still remains abnormal and particularly when such exercise is followed by irregularities in both rhythm and in sound. Murmurs of an indefinite and not transmissible character are very likely to be present, or to appear after exercise, and one of the chief characteristics of such murmurs is their irregular character and their inconstancy.

Irregularities of rhythm, extrasystoles, heart block, sinus rhythm or auricular fibrillation are all likely to appear in degeneration of the heart muscle. Mackenzie is very much inclined apparently to assume that these irregularities are usually if not always due to involvement of the bundle of Hiss, but I am not prepared to accept so constant and definite a lesion, and am much more of the opinion that these irregularities of conduction and contractility may be brought about by disease of any portion of the myocardium. I personally am strongly of the opinion that the degree of invasion of the papillary muscles and of the chorda tendinae in particular very materially alter the character of the heart rhythm and sound. It can be readily understood how disease of the chorda might particularly affect the character of the valve closures, and thus contribute very largely to the production of atypical murmurs.

Since the functions of the higher nerve centers are the most delicately poised of all the automatic mechanisms of the body, it is entirely to be expected that they are very early deranged in those instances where, following defective heart muscle action, *cerebral circulation* is altered or defective. Sudden lapses of memory, especially those quickly transitory, a loss of mental concentration, of the chain of logic, a slowed mathematical ability, inability to express one's self on accustomed subjects or in familiar words, a lack of technic, may all appear as an evidence of slowed and defective cerebral circulation due to this type of heart disease.

Closely allied to such manifestations is the *irregular blood pressure* which sometimes but by no means always appears in heart muscle disease. Regular deficiencies in this direction are more likely to be due to mechanical defects, as from valvular lesions, but irregularities in blood pressure when accounted for by no other circulatory lesion or by nervous impulses are quite frequently to be attributed to disease of the heart muscle. In some instances the general level of the pressure is elevated, in other instances depressed—of course, in approaching decompensation there is a general fall, and very often a very rapid one in the blood pressure, but the earlier stages of the muscle disease are much more likely to be manifested by rapid and erratic alterations.

The judgment of nearly all of us is undoubtedly too much swayed in any case by the presence or absence of *endocarditis*. Our training in the past and the spectacular character of the organic valve lesions and their signs have so impressed themselves on us that it is difficult for most of us, especially for me, to subordinate the question of endocardial lesions and to study the case as from the standpoint of the really most important factor, the muscle.

In my analysis of a considerable series of cases of endocarditis studied at autopsy, I became much impressed with the fact that in practically all fatal instances consequent upon the heart lesions, the dominant factor was the associated degeneration of the heart muscle. I bring this point out because I still find myself too apt to consider the case as one of endocarditis essentially if I am able to demonstrate organic valve lesions in any particular case, though study convinces me, as it must any of us, that the real question in any case of endocarditis, as I stated at the outset of this paper, is not as to the valve lesion, excluding, of course, the problems of thrombosis and embolism, but the case finally resolves itself down to what is the condition and possibility of the heart muscle.

This is the dominant problem in *decompensation* in practically every instance. All our cardiac therapeusis is based on an acknowledgment of this fact, and yet I find that I attempt to satisfy myself and to base diagnosis on endocardial signs. It is but fair to assume that in every case of endocarditis, either the muscle question is or will become the real crux of the case. I introduce this discussion of so trite a subject so that we may appreciate that because an endocarditis is present, by no means should the question of muscle degeneration be excluded or subordinated.

The diagnosis: Although in the discussion of the symptomatology most of the chief diagnostic points have been more or less referred to, it may perhaps clarify the subject in our minds to review under this heading, though in a very brief manner, the chief points to be considered in the problem of diagnosis. Of course, where an endocardial lesion, or one of only apparent minor import is found, diagnosis of a myocardial disease becomes much easier when the classic evidences of a failing circulation are manifest. Even though other impediments exist which seriously interfere with the circulation, such, for example, as considerable areas of capillary compression in the lung, as in fibroid phthisis or as in cirrhosis of the liver, interstitial nephritis and the like, in every one of these conditions the final court is the question as to the possibility of the heart muscle. Because of the infrequency of inflammatory lesions of the heart muscle when these defects are believed to exist in cardiac action it is just to assume, the more important inflammatory conditions having been largely considered and excluded, that we are dealing with a degenerated heart muscle.

The *history* of the case is most important, as we have pointed out, not only because it indicates in a very high percentage of the cases the presence or absence of muscle disease, but also because, as we have shown, a close study of the history is quite likely to give us a clue as to the most probable type of degeneration, deduced from the nature of the most probable or dominant etiological factor. It is, therefore, very important in diagnosis to go carefully and fully into the history both recent and old.

The signs and symptoms of *peripheral stasis,* the dyspnea, cyanosis, delayed capillary reaction, the evidences of deep visceral engorgement, the presence of a deficient urinary secretion or of one in which the solid excretion is considerably lowered when the character of the diet is considered, are all points of obvious diagnostic bearing.

The study of the *pulse* is valuable, its rhythm, its tone, body, whether all the ventricular systoles are apparent in the peripheral vessels, whether or not any of the typical arythmias are present. It may be that polygraphic tracings, that electrocardiagrams or the best of all in so far as the exact determination of the cardiac action is concerned, the use of the X ray screen may give us definite knowledge.

Pain in the pericardium, its character, occurrence and transmission having been considered, it must be remembered, unless otherwise explainable, is almost always due to degeneration of the heart muscle. The character of the heart sounds, and especially that of the first or muscle sound is very significant and especially diagnostic if irregular in occurrence or character.

The size of the heart and whether or not dilatation takes place under exercise is most important, and it must be recalled in this particular respect that rapidity of action as a rule means approaching decompensation, and if this be associated with a falling or low blood pressure, it indicates that decompensation is already upon us.

Finally all other obstructive lesions in the circulatory tree must be considered, and in so far as possible eliminated before the diagnosis of a myocardial degeneration be ventured upon—still as before said, it must be held in mind that in the end of all, the heart muscle finally gives way in practically every instance.

In conclusion I wish again to point out that it is very important to attempt to differentiate in so far as possible as to the precise character of the degeneration. This is by no means an easy matter, nor is the diagnosis ever certain, until the autopsy in this respect, but where it can be made with a reasonable degree of probability it becomes a sufficient guide as to treatment, and treatment should in all cases depend on a primary assumption of the type of myocardial degeneration present.

THE MEDICAL TREATMENT OF INTESTINAL STASIS WITH SPECIAL REFERENCE TO THE USE OF LIQUID PARAFFIN

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Chronic intestinal stasis with its associated phenomena is now one of the best recognized clinical conditions in civilized countries, though it is only comparatively recently that its farreaching effects have been appreciated by the medical profession. The brilliant researches and instructive generalizations of Sir W. Arbuthnot Lane have done much to revolutionize our ideas on this important subject and his observations have been in large part confirmed by other surgeons, including Mr. Charles Mayo, of Rochester, U. S. A. Physicians, however, on both sides of the Atlantic have been slow in realizing the importance of the question and Lane's theories have met with strong opposition, as being contrary to preconceived ideas of the function of the large intestine. For a time the present writer stood almost alone among London physicians in supporting Lane's contentions, but it is interesting to note that in the recent discussion on "Alimentary Toxemia" at the Royal Society of Medicine, in London, the transactions of which contain the most recent exposition of the whole subject, the new doctrine has with some reservations been accepted by many leading physicians and surgeons in the metropolis. In April, 1912, the writer published a paper on "Visceroptosis* and Intestinal Stasis," to which the reader is referred for full particulars regarding the nature, causation and clinical manifestations of intestinal stasis.

It will be necessary, however, in order to explain the therapeutic aspect of intestinal stasis to give a brief summary of its main causal factors and its principal pathological and clinical phenomena.

Intestinal stasis consists essentially in a more or less stagnant condition of the bowel so that there is an undue accumulation and delay in the evacuation of the intestinal contents. The stasis may be the result either of neuromuscular atony producing defective peristalsis or partial mechanical obstruction interfering with the action of peristalisis—both of which factors may seriously interfere with the motor functions of the bowel.

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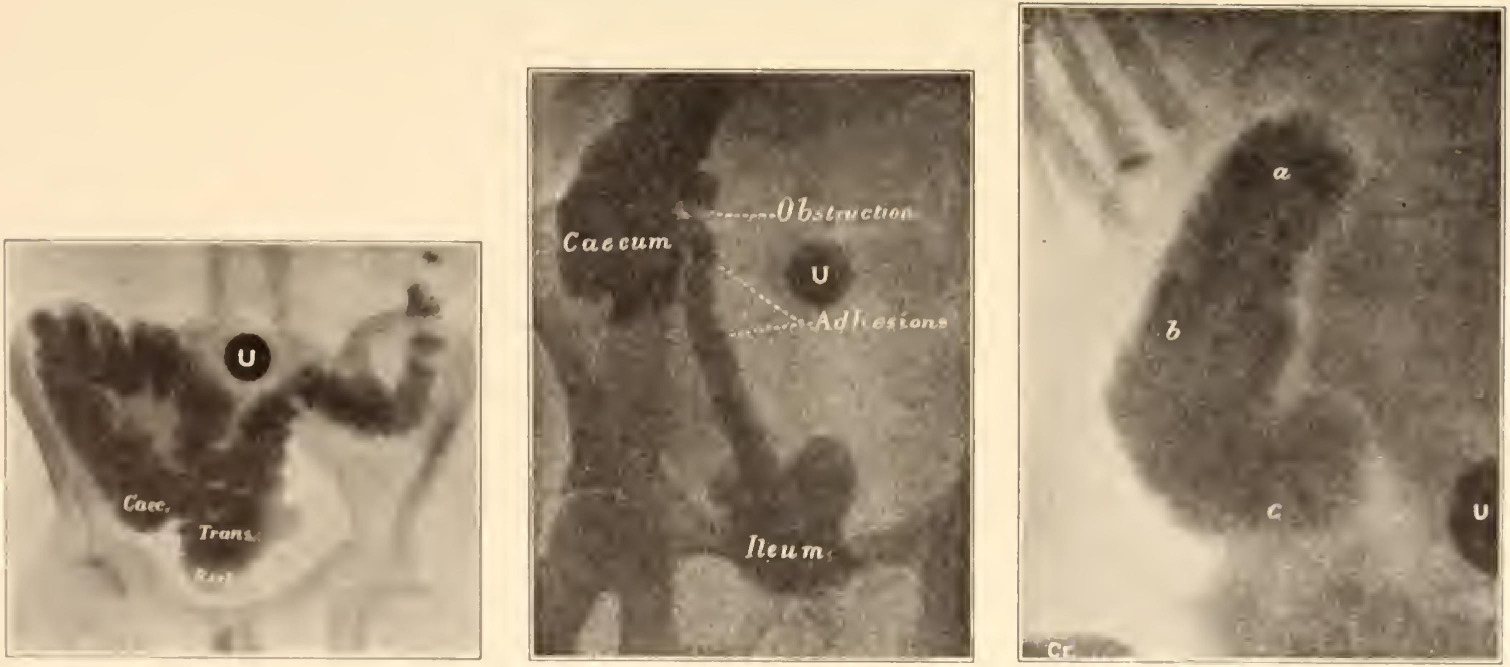
*Clinical Journal, London, April, 1912.

Neuromuscular atony, though it may possibly in a minority of cases be congenital, is usually acquired, and may be the result of such causes as debilitating conditions, sedentary habits or matutinal neglect. The nervous factor may manifest itself by defective reaction to natural dietetic stimuli, and this defect may be either natural to the individual and to some extent congenital, or may be due to a temporary lowered vitality of the nerve centers, as in neurasthenia or melancholia. Dietetic errors, such as the taking of semisolid pulpy food containing an insufficiency of solid stimulating residue, play an important part in its causation.

As regards the relation of stasis to *mechanical obstruction,* it is only within the last few years that we have begun to realize the *important rôle played by visceroptosis, with its associated adhesions and kinks in producing intestinal stasis.* In a large proportion of the writer's cases of advanced intestinal stasis there has been a greater or less degree of downward displacement (ptosis) of one or more segments of the gastrointestinal canal. This ptosis is aggravated by even temporary constipation, and is therefore specially apt to affect the heavy cecum and colon loaded with semisolid and solid contents. There may, of course, be great dropping of the transverse and other portions of the colon, without any definite symptoms of stasis, but, when the condition has existed for some twelve or fifteen years and the patient is approaching middle life, stagnation of the fecal contents begins to take place in the dropped colon, amounting in some cases to a delay of many days' duration; this is particularly the case when the dropped bowel becomes fixed in the true pelvis. In some cases we may have the lower end of the ileum, the cecum, the U-shaped loop of the transverse colon, the sigmoid and the rectum, all bunched together in the true pelvis and compressing the female reproductive organs.

The pelvic colon and rectum may become greatly elongated (perhaps as much as twice the normal length), sagging along the floor of the true pelvis, and capable of retaining the fecal matter for several days, even though a small piece may be broken off and evacuated daily, thus giving rise to a false impression of bowel regularity. There may even be irritative diarrhea—the "diarrhea of constipation." It is to radiographic examinations after bismuth meals that we owe our present exact knowledge of visceroptosis, and—in not a few advanced cases necessitating surgical treatment—the writer has been enabled to confirm the X ray findings in the operating theater. The radiographic investigations of his colleague, Dr. Alfred Jordan, have added much to our knowledge of this subject.



The Medical Treatment of Intestinal Stasis with Special Reference to the use of Liquid Paraffin, by R. Murray Leslie, M.A., B.Sc., M.D.

As the result of the enteroptosis, *adhesions* begin to form along the lines of resistance to downward displacement. These are in reality *conservative evolutionary structures,* developed so as to exert a beneficial effect in opposing the natural tendency to dropping of the loaded viscera, from the action of gravity during the long hours (12-16) from early morning till late at night that the individual is in the erect posture. When a viscus drags upon its mesenteric attachment, a thickened band tends to form along the "line of drag," and may be so strong as to merit the title of an acquired or supplementary mesentery. The writer has now seen numbers of these adhesive structures at operation demonstrations. Professor Keith states that similar peritoneal adhesions are found as early as the third or fourth month of intrauterine life, and that some of these *antenatal adhesions* are peculiar to man and the anthropoid apes, and are doubtless formed so as to prepare the animal for the upright posture. The antenatal adhesions are thus preparatory, while the *postnatal adhesions* are gradually developed so as to counteract the increasing weight of the abdominal viscera. Adhesive bands may be found anchoring the pylorus to the under surface of the liver, the cecum and appendix to the adjacent parietes, the hepatic flexure to the right kidney and adjacent parietes, and the sigmoid colon to the abdominal wall at the level of the brim of the pelvis.

As the result of the "hitching up" of intestinal coils by these adhesions, various *kinks* tend to develop in association with visceroptosis. Ewald believed that the frequency of constipation in women was largely the result of such kinks, and was of opinion that in addition to actual mechanical obstruction these kinks produced a reflex irritation of the bowel and consequent interference with its motor and secretory functions. It is to Arbuthnot Lane, however, that we owe most of our present knowledge of intestinal kinks.

The principal kinks are: the pyloric kink, the duodenojejunal kink, the ileal kink (Lane's), the kink of the appendix, the angulation of the hepatic and splenic flexures and the sigmoid kink. Probably the most important of these is the ileal kink, due to the prolapse of the ileum and the hitching up of its terminal portion close to the cecum by an adhesive band. The duodenojejunal kink with consequent distension of the duodenum is as a rule secondary to the ileal kink. The obstructive effect of such kinks and their relation to intestinal stasis is obvious.

The fact that stands out most prominently in the writer's cases of intestinal stasis is the large *preponderance of cases occurring in the female sex.* The average age at which the patients came under his observation was 35, while the average period from the onset of symptoms was twelve years. There has generally been a history of constipation, commencing in quite early adult life, the more remote symptoms of alimentary toxemia, including asthenia and loss of weight, usually becoming pronounced between the ages of 30 and 45. Another curious fact is that the majority of his advanced cases have occurred in unmarried women, indicating the beneficial effects of matrimony as a counteracting influence. The explanation of this sex preponderance may be attributed to the fact that enteroptosis, which is fully ten times more common in women, is probably by far the most important primary factor in the production of intestinal stasis. Meinert found visceroptosis in more than 80 per cent. of all his gynecological patients. This greater frequency of enteroptosis in women may be traced to the following causes: (1) *the less marked obliquity of the female pelvis*—so that the pelvic cavity in addition to having greater width and capacity is more of a continuation of the elongated female abdominal cavity, while the more expanded pubic arch gives less direct support to the overlying viscera; (2) *the more lax condition of the abdominal walls*—which offers less resistance to downward pressure and which may be accentuated by overdistension, due to repeated pregnancies and other causes; (3) *the wearing of wrongly constructed corsets,* particularly when the corset exerts pressure on the base of the thorax and upper part of the abdomen, thus forcing the organs downwards; (4) *the greater tendency to neurasthenic debility,* particularly when associated with the unmarried state and with pelvic disorders, and to acquired and constitutional weakness of the mesenteric and other peritoneal attachments; and (5) the almost universal adoption in civilized countries of the high *sitting posture in the daily act of evacuation in contrast to the natural crouching one,* in which the viscera are supported by the opposition of the thighs on the abdomen, the *present high lavatory seats being particularly harmful in the case of women* and children with their shorter lower limbs, as any straining tends to force the unsupported colon into the pelvis and so causes the characteristic sagging and elongation of the rectum along the pelvic floor.

DIAGNOSIS

The symptoms of intestinal stasis may be divided into (1) local abdominal symptoms, and (2) symptoms of autointoxication—alimentary toxemia.

The local symptoms may take the form of simple flatulence or vague abdominal discomfort associated with a greater or less degree of constipation or with alternating constipation and diarrhea. There is often actual pain of a dragging or spasmodic character, which in some cases is associated with definite tenderness over a particular region. In the cases with wellmarked pain and tenderness, radiographic examination may reveal evidence of some obstruction, due either to kinks or impaction of the cecum or sigmoid in the pelvis. Clinically enteroptosis may be always suspected if the patient tends to get worse as the day goes on, both as regards debility and discomfort; and if the symptoms are wholly or in part relieved on lying down.

The *general symptoms* of stasis are mainly those of alimentary toxemia and neurasthenia. Intestinal stasis is preeminently the condition favoring increased bacterial multiplication and toxemia. The prolonged retention of the bowel contents offers special opportunities for undue fermentative activities of the bacteria and for the absorption of their toxic products. The effect of the stasis also tends to cause an upward spread of the coliform bacteria from their usual habitat—the colon—into the small intestine, the mucous membrane of which is much more absorptive than that of the large intestine. It would be impossible to enumerate all the toxemic and neurethenic symptoms manifested by different patients. The most important are: headache, malaise, general languor and inertia, irritability, mental depression, cold, clammy and livid extremities, occasional dark staining of the skin, muscular debility, incapacity for prolonged physical or mental exertion, and progressive emaciation. A nodular condition of the breasts is often present in advanced cases. As regards some of the remote sequela, one might mention cystic changes in the breasts, ovaries and thyroid glands, appendicular irritation, gastric and duodenal dilatation, with or without ulceration, and gall stones. Mucous colitis is a frequent accompaniment, and is indeed in most cases the direct result of stasis.

There is some diversity of opinion as to the interrelationship of intestinal stasis and neurasthenia. Sir W. Arbuthnot Lane regards the so called neurasthenic symptoms as manifestations of alimentary toxemia. The present writer, while admitting that toxemia may be the causal factor in a certain proportion of cases, is of opinion that neurasthenia may itself be the determining cause of intestinal stasis, by producing neuromuscular atony. There is also a close association between pelvic affections in women on the one hand and intestinal stasis and mucous colitis on the other. Visceroptosis tends to produce uterine displacements and other pelvic disorders, which in their turn tend to induce general neurasthenia and local reflex functional disturbance of the gastrointestinal tract affecting both its secretion and motility. Constipation, irregular peristalsis, congestive catarrh, or actual ulceration supervene and we have thus a vicious circle established. The wonderful therapeutic results following ileosigmoidoscopy, which permanently relieves the stasis are no doubt due to the breaking down of this vicious circle.

Finally it may be said that in regard to intestinal stasis radiography is of paramount importance in indicating, not only the degree of enteroptosis and the presence of kinks or impactions, but also the precise site of the constriction and the full extent of the stasis. By means of the fluorescent screen the course of a bismuth meal can be accurately followed in its passage from the stomach to the rectum, and it is often essential to have four to six examinations in the course of the first forty-eight hours. The precise amount of delay and the exact number of hours required for the transit along the various sections of the alimentary canal can in this way be readily determined. Radiographs are taken at the various stages. In no department of medicine and surgery is radiography of more value as a means of diagnosis.

PROPHYLAXIS

The importance of prophylactic or preventive treatment cannot be overestimated.

It is probable that the initial conditions predisposing to stasis are often present in quite early life, and abnormal conditions of the bowel may result from the gastrointestinal disturbances so common in infants fed on artificial food substitutes. If infantile indigestion is allowed to go on, a condition of catarrhal inflammation and distension of the intestines often develops, leading to irritative congestive changes in the peritoneum, which may culminate in the formation of various adhesions fixing portions of the bowel in abnormal situations, and so interfering with its motor functions.

Parents ought to be extremely particular in inculcating regular habits in their children, as the prevention of constipation is all important. I may here allude again to the unsuitability of the usual high lavatory seats for the use of older children, and the practical necessity of providing footstools high enough to permit of the children adopting a more or less crouching posture.

To guard against the formation of ptosis, children should be encouraged to adopt the recumbent attitude as much as possible, by occassionally lying down on the floor or on couches, more particularly after meals, instead of being perched up, as they often are, on high chairs—a strained posture which does not permit of muscular relaxation.

Great care should be exercised in not permitting delicate women to get up too soon after confinement or other debilitating illnesses;

if the patient is thin, with relaxed abdominal muscles, a rest for one or two hours daily (e.g. after lunch) is strongly to be recommended in certain cases.

On no consideration should women wear corsets that exert pressure on the base of the thorax and upper part of the abdomen, as this tends to produce ptosis of the underlying viscera. A properly constructed corset may be of considerable value, and, indeed, one of the most efficacious methods of treatment when enteroptosis has actually occurred consists in the wearing of specially designed mechanical supports—either in the form of belts or corsets.* Great care should be taken that the pressure of the belt, corset, or other support shall be exerted over the lower part of the abdomen, the direction of pressure being upwards and backwards. Such an upward intraabdominal pressure counteracts the tendency to dropping of the viscera.

Women should also be specially cautioned against lifting heavy weights, such as large pieces of furniture. Much permanent damage may be done in the course of a vigorous but injudicious "spring cleaning."

Physical exercises designed more particularly with the object of strengthening the abdominal muscles are most valuable, and may be performed both in the erect and in the recumbent (dorsal) position. Daily open air exercise, and above all regular daily habits, are of the greatest value in preventing constipation, and would render unnecessary the constant taking of aperients, the use of which is so common among those women who from choice or necessity live a sedentary life.

Skilled abdominal massage is valuable both as a prophylactive and a curative measure, and in not a few cases the strengthening of the abdominal walls is all that is necessary to secure the adequate support of the underlying organs.

A combination of electricity with massage, electric baths, direct Faradism, and "high frequency" currents have been found useful in special instances, while the reputation of certain natural Spa waters in preventing or relieving intestinal stasis is not undeserved.

In cases of threatened intestinal stasis in neurasthenic subjects the writer has often found that a prolonged rest cure of six weeks or longer, with general and abdominal massage, electrical treatment and special feeding, is often followed by beneficial results It is further an excellent plan for busy women to occasionally sleep at night with the foot of the bed raised by suitable supports, as seven or eight hours in this position may do much to counteract the tendency to ptosis which is present during the waking hours of the day.

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*See London Institute of Hygiene Regulations on "the wearing of corsets"

Hydropathic treatment, including a course of irrigation of the bowel (e.g. the "Plombières Douche"), is often of considerable value. It is much easier to persuade persons to submit to a definite dietetic and hygienic régime at a Spa or health resort than at home.

The importance of suitable diet cannot be overestimated as a prophylactic in intestinal stasis. It is well to eliminate as far as possible such indigestible articles of food as would tend to accumulate in the form of undigested masses in the cecum and other portions of the large bowel. In the writer's experience intestinal stasis is much commoner in private than in hospital practice, and this preponderance among the upper classes is in part due to the efforts of injudicious diet, and in part, no doubt, also to their more pronounced sedentary habits. The intake of animal proteids in civilized countries is greatly in excess of the requirements of the organism, as has been proved by Professor Chittenden and others, and such excess leads to abnormal fermentative and putrefactive changes in the bowel, producing distension of the intestines, and so aggravating, if not actually inducing intestinal stasis. Two good meals with a light repast in the interval would often with advantage replace the three heavy meals which form the usual dietary of the wealthier classes. Alimentary toxemia is mainly the result of excessive bacterial decomposition of animal proteids, and accordingly the reduction of meat diet and the substitution for a time at least of vegetable proteids is often of great advantage. The hard and fibrous constituents of vegetables and fruits form a solid residue, which acts as a natural stimulant to peristaltic action. For this reason the soft, pulpy foods and "made" dishes of the modern cuisine are to be deprecated. It is at the same time of extreme importance that all food should be well masticated, as it has been shown that the cecum accumulations consist largely of improperly masticated materials. A good dentist, who, in addition to looking after the teeth, impresses upon his patients the importance of careful and consistent mastication, will prevent many an attack of typhilitis and perityphilitis with or without appendicitis. It is well to impress on women the necessity of drinking, preferably between meals, a sufficient quantity of water, which is essential in order to keep the intestinal contents liquid and so to facilitate their passage along the intestine.

In the case of thin persons of a spare habit of body, milk, cream, eggs and other nutritious and fattening foods should be partaken of freely, so as to produce the requisite amount of internal adipose padding. The modern fashionable woman's desire to acquire a thin, willowy figure is neither esthetic nor hygienic. Visceroptosis does not seem to be so common among French and German women with their rounded plump figures as it is in England and America.

The writer has already referred to the beneficial results of matrimony as a prophylactic and counteracting influence in regard to intestinal stasis. Recent investigations in regard to the rôle played in the economy of the organism by the internal secretions of the genital glands have thrown much light on the subject. Stasis is indeed one of the many penalties which nature exacts from unmarried women who have been denied or who have refused the opportunity of marriage and maternity. A distinct relationship may be traced between the postponement of the age of marriage among women of the upper classes and the present incidence of intestinal stasis.

THERAPEUTICS

It is obvious that most of the hygienic, dietetic and other measures referred to under prophylaxis are equally applicable in the actual therapeutics of intestinal stasis. The writer proposes, however, to devote the remainder of this article to medicinal treatment. It is not his purpose to discuss the relative value of the various aperient remedies employed in the treatment of constipation. The enormous fortunes made by the vendors of patent pills testify to the prevalence and universality of "the drug habit," the apparent necessity of which is largely the result of disregard of nature's simple rules, and which is more or less incidental to the artificial complexity of modern civilization. Cholagogues would not be required were it not that the liver is rendered sluggish by over eating in association with sedentary habits. The amount of food consumed should be in proportion to the amount of work and not to the amount of leisure, as it is today. But in view of the sedentary habits incidental to the so called exigencies of modern life, particularly in the social and business spheres, an occasional hepatic stimulant becomes a practical necessity, as a deficiency of bile tends to promote intestinal stasis, owing to the increased fermentative and putrefactive changes that ensue, and with the toxemic products of which the liver is no longer able to deal efficiently. The writer recommends a blue pill with euonymin to be taken at bedtime once or twice weekly in such cases, to be followed in the morning by some natural saline aperient. As the stasis particularly affects the colon, the writer finds great benefit from the use of cascara sagrada, and it is better to prescribe it in, say, 10-15 minim doses thrice daily than in the form of one large dose at bedtime. In this way an educative influence may be gradually established, when the dose may be proportionately reduced.

The various aromatic preparations of cascara are excellent. Belladonna is a most valuable adjuvant in aperient pills for constipation associated with occasional spasmodic pain; it may be given in combination with such drugs as nux vomica, aloes or colocynth. Agar, as recommended by Schmidt,* is extremely useful in intestinal stasis when delay has resulted in dehydration of the intestinal contents. At best most aperients only afford temporary relief of constipation.

TREATMENT BY LIQUID PARAFFIN (PETROLEUM)

The numerous *aperient remedies,* the indiscriminate use of which is directly opposed to the modern view of rational therapeutics, *have now been largely superseded by the use of lubricants,* particularly liquid paraffin (petroleum), which in the writer's opinion is by far the most valuable internal remedy in the treatment of intestinal stasis. It has indeed been the lubricant action of such household remedies as castor oil and olive oil rather than their aperient properties which explains their wide usefulness and popularity.

As one of the first to systematically administrate liquid paraffin in intestinal stasis, the writer can speak with some authority in regard to its value. As the result of his experience he has no hesitation in stating that in the large majority of cases of early intestinal stasis the judicious use of liquid paraffin (in association with diet modifications, hygienic measures and in some cases with properly constructed supporting belts) is usually quite efficacious in affording permanent relief.

PHARMACOLOGY OF LIQUID PARAFFIN (Synonyms—Liquid Petroleum, Vasoline, Paroleine, Chrismoline, Chrismol, Glymol, etc.)

Liquid paraffin, as sold commercially for medicinal use, is a mixture of various members of the paraffin series of hydrocarbons, the crude petroleum being purified from traces of sulphur compounds, acids and other irritating ingredients. The more volatile hydrocarbons may be distilled off at a temperature below 330 C., leaving the higher, purer and more inert homologues of the group, many of which do not distil below a temperature of 360 C.

When pure, medicinal paraffin is a neutral, tasteless, colorless and odorless liquid not liable to hydration, oxidation or saponification. It is extremely resistant to the action of chemical agents and is incapable of digestion. Experimental analysis has shown that the whole of the ingested paraffin may be recovered from the feces, thus proving that it passes through the alimentary tract unaltered and

*Munch. Med. Woch., 1905, No. 41.

unabsorbed. Though of an oily character, it is not a fat and has no direct nutritive value. It is not an aperient in the usually accepted sense of the term, as it does not act as an irritant stimulating peristalsis, nor has it any osmotic action, attracting water so as to liquefy the intestinal contents.

The action of liquid paraffin is twofold—lubricant and protective, and both of these actions are of immense value in intestinal stasis. The beneficial effect of its *lubricant action,* though appreciable in the jejunum and ileum (where it is distributed throughout the fluid contents in the form of small globules), is mainly exercised in the large intestine with its semisolid and solid contents. Here it forms a lubricating layer upon the inner coating of the bowel and upon the outer surface of the fecal masses, and accordingly facilitates in a remarkable manner the passage of the intestinal contents along the abdominal and pelvic colon and their ultimate expulsion.

The value of liquid paraffin in facilitating the passage of intestinal contents in adults can be readily gauged by watching with the X-ray screen the rate of passage of a bismuth meal in a patient with intestinal stasis who has been taking liquid paraffin right up to the date of examination. In such a case the bismuth may be observed actually coursing along the bowel coils, including the segments of the large intestine, while in a similar case where no paraffin has been administered the passage is slow, irregular and spasmodic. Indeed, for diagnostic purposes the writer never allows his patients to take any paraffin for ten days before a bismuth X-ray examination, as the lubricant effect lasts quite a long time. Failure to observe this rule will often lead to a negative X-ray result even in cases of well marked stasis. The effect of full doses of paraffin may shorten the time taken by the passage of the gastrointestinal contents from the stomach to the rectum by as much as one half.

The *protective action* of liquid paraffin is exerted upon the intestinal mucous membrane and tends to prevent any local irritation or abrasion. Slight breaches of continuity in the epithelial surface naturally predisposes to bacterial invasion and toxic blood absorption, with resulting alimentary toxemia. The value of the protective action of liquid paraffin is thus apparent.

Referring again to the lubricant action of liquid paraffin, it must be remembered that in normal conditions nature provides an efficient lubricant in the form of healthy mucus, secreted by the mucous follicles. There may, however, be an insufficient production of healthy mucus, which would naturally tend to induce or aggravate intestinal stasis, while the long continuance of fecal matter in the bowel as the result of the stasis would lead to excessive absorption of water with dehydration of the bowel contents. In such circumstances the mucus that has been secreted would tend to become dried up and inspissated, so that its lubricant action becomes greatly reduced. In this connection it may be mentioned that mucin has been used as a lubricating agent until it was replaced by liquid paraffin, which is both more easily obtainable and more efficient in its action.

Dr. Eric Pritchard* has recently stated that in new born infants the meconium acts as a "perfectly designed intestinal lubricant" and also preserves and protects the delicate, epithelial lining of the intestine. He further states that should this meconium be prematurely expelled by accident or undue interference (by aperients or otherwise), he always replaces it by the most efficient substitute, which in his opinion is liquid paraffin in the form of an emulsion. So protective, lubricant and soothing is its action that he gives this liquid paraffin emulsion in all cases in which an infant suffers from tormina, enterospasm or dysperistalsis. In his opinion there is nothing which restores the healthy function of the bowel in all cases of intestinal intoxication in children so well as liquid paraffin, given in the form of an emulsion at comparatively short intervals. He agrees with Arbuthnot Lane in regard to the association between intestinal stasis and the tuberculous process in children and believes that stasis and intestinal toxemia are among the most unfavorable elements in tuberculosis in children.

The judicious use of liquid paraffin in the treatment of constipation in children—particularly those who suffer from digestive disturbances and colicky spasms—will, in the opinion of the writer, oftentimes prevent the onset of many an acute and chronic bacterial infection, as it is now well recognized that any breach of continuity in the epithelial surface of the intestinal mucous membrane specially predisposes to bacterial invasion. In his own practice liquid paraffin has replaced all the usual aperient drugs given to children, including even castor oil, which is itself a most useful lubricant, but which may cause harmful irritation in certain congestive conditions of the intestinal mucous membrane.

The well-known condition in adults—*mucous colitis*—is in the majority of instances merely an accompaniment of intestinal stasis, being but a form of mucous catarrh, due to irritating congestive and excessive stimulation of the intestinal mucous glands caused by dry, hard, scybalous masses, which also induce irregular and spasmodic peristaltic movements and so cause the griping, colicky pains and diarrhea so commonly met with in that affection, and comparable to the spasmodic pains and diarrhea in children associated with dysperistalsis due to local congestion with or without epithelial denudation. It is, indeed, the long retained dried mucus in conjunction with detached epithelial flakes which forms the characteristic shreds and bowel casts found in the more advanced stages. It may be said that mucous colitis probably represents a futile attempt on the part of nature to overcome the stasis. The writer has had excellent therapeutic results from the administration of liquid paraffin in mucous colitis, which he has generally found associated with a greater or less degree of intestinal stasis and visceroptosis. There is a great field for the employment of this remedy in asylums for the insane, as the inmates are particularly prone to mucous colitis, due no doubt to atony and stasis.

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*Archives of Pediatrics, March, 1913.

The value of liquid paraffin in mucous colitis is indicated by the following incident: The director of one of the Metropolitan Research Laboratories was greatly exercised owing to the high mortality from mucous colitis among the monkeys employed for experimental investigation. He was advised to administer liquid paraffin, with the result that the mucous colitis practically disappeared and the high mortality rate fell in a most remarkable manner, much to the benefit of the finances of the institute.

DOSAGE AND MODE OF ADMINISTRATION OF LIQUID PARAFFIN

In most cases the plain, purified liquid paraffin may be given without any flavoring agent and unmixed with other ingredients. Some patients object to its oily character, but most people experience no difficulty in taking it in this form, and the so called disagreeable aftertaste is more imaginary than real. It may be given in capsules if desired. Various flavored and sweetened preparations and confections of paraffin are now prepared by manufacturers, and appeal to children and fastidious adults. The addition of such flavoring agents as lemon and peppermint certainly make it more palatable. Soft paraffin may be used instead of liquid paraffin, and in equivalent quantities is said by Dr. Neville Wood and others "to pass through the alimentary canal much less quickly, but when once the correct dose has been found, its action is more constant." The writer invariably uses liquid petroleum in intestinal stasis.

The dosage naturally varies with the age of the patient, with the type of case and with the degree of stasis. It is much better to give paraffin in divided doses at regular intervals two or three times daily instead of in one single dose at bedtime. The writer generally commences with one or two teaspoonfuls twice or thrice daily before or after meals, and it is often necessary to increase the dose to a tablespoonful, or even two or more tablespoonfuls, thrice daily. As a rule, ½ oz.—1 oz. doses are sufficient even in obstinate cases, particularly if the patient is having abdominal massage or is able to take a fair amount of exercise. Unlike most aperients, petroleum, being more or less mechanical in its action, does not lose its effect by prolonged use, and the effective dose does therefore not require to be increased. Some observers have noted a certain variability in its action, not only in different individuals, but in the same individual at different times, but this variability can be readily explained by the variable character of the intestinal contents and the altered position of the intestinal coils, which are differently placed in the erect and in the recumbent posture. The full lubricant effect of liquid paraffin is not obtained for several days, and it is therefore advisable not to increase the dose until four or five days have elapsed. When the bowels have begun to act regularly the dose of paraffin may be very gradually diminished and the minimum effective dose may then be continued more or less indefinitely without inconvenience. With medium doses the dejecta may be quite "formed" and natural in appearance, but with full doses the motions are semisolid or often more or less liquid. In a few cases where the motions are constantly liquid a slight inconvenience has occasionally arisen from an involuntary oozing *per rectum* with staining of the underlinen. In the case of children, teaspoonful doses are usually sufficient, and half drachm doses for infants, though these may all be increased when necessary without producing any ill effects. Some children dislike liquid paraffin, but will take it readily if it is sweetened with milk sugar or flavored with peppermint. Dr. Eric Pritchard strongly recommends the giving of an emulsion of liquid paraffin in the case of infants. His emulsion consists of liquid paraffin (m. 20), Benzoic acid (gr. 1-32), saccharin (gr. 1-32), oil of cinnamon (1-16) and decoction of Irish Moss (up to dr. 1). Of this emulsion one to four teaspoonfuls may be taken from three to six times a day. In the case of older children such an emulsion may be used as a vehicle for such tonics as a calcium hyposulphite (in the proportion of 1 to 2 grains for each dose), and also for the administration of many other useful drugs.

Liquid paraffin is extremely useful as a routine remedy in the treatment of ordinary constipation apart from actual stasis, particularly when associated with flatulence or distension, while the value of its lubricant action in the case of painful hemorrhoids is obvious.

In conclusion the writer would like to add that in aggravated cases of intestinal stasis the use of liquid paraffin must be associated with the various remedial measures referred to under prophylaxis, particularly abdominal massage and hypogastric support, the latter being almost essential when enteroptosis is present to any marked degree (a spring belt on the principle of the "Curtis" support meets the requirements of the case).

In a minority of instances where intestinal stasis is aggravated by the presence of definite kinks, pelvic adhesions, and cecal and sigmoid impaction, producing well marked obstructive and toxemic symptoms and associated with severe abdominal pain, progressive debility and emaciation, the use of liquid paraffin even in large doses and assisted by other simple remedial measures may prove quite unavailing. In such cases the writer has no hesitation in advising surgical interference, particularly the short circuiting of the ileum into the pelvic colon as recommended by Lane—a procedure which in suitable cases has in the writer's experience been followed by beneficial results that may be truly described as marvellous. Some of his patients who have undergone this operation now look ten or fifteen years younger and may be said literally to have taken on a new lease of life. In less aggravated cases the judicious use of liquid paraffin has brought about a similar transformation.

REJUVENESCENCE

By I. L. NASCHER, M.D., New York

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In a recent paper on *Longevity and Rejuvenescence*[*] I said: "Rejuvenescence in the sense of restoring youth to old age is an absolute impossibility; but there is nothing inherently impossible in the idea that we can stimulate the functions of senile tissues, increase metabolic activity, control some of the factors that contribute to senescence and improve the mentality and physical appearance of the aged." Close association with a number of persons in the eighth, ninth and tenth decades of life revealed certain factors in their constitution and mode of living common to most or all, and having an undoubted bearing upon their longevity. Some of these factors were controllable and could be made applicable to those who age rapidly, to either retard the senile processes or improve their general appearance, mentality and physical condition. A few examples will show how these results were obtained.

A prominent cause of early aging is a pneumokoniosis with contracted chest, this contraction being increased in the familiar slouching attitude with arms hanging in front of the body. Those who reach old age endeavor to maintain an erect bearing, and when they notice the tendency to stoop they use a cane. In this erect attitude the chest is more fully expanded and the blood is more completely aerated.

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[*] N. Y. Med. Jour., July 12, 1913.

Case 1. A cobbler, aged 63, living for years in the vitiated atmosphere of a tenement basement, complained of rheumatism in the knees. He presented the appearance of senile decrepitude, his back bent, his chest contracted, his breathing shallow; there were evidences of impaired blood and poor circulation in the sallow complexion, cyanotic lips and areas of passive hyperemia. He could still peg away though with diminished strength, taking frequent rests. He did not realize that he was aging rapidly in spite of the many indications. He ascribed his failing vision, really a presbyopia, to poor glasses; his frequent fatigue and somnolence to malaria. His only serious complaint was pain in the knees, which came on only after walking. This was due to arthrosclerosis. He did not know whether he was constipated or not, but he did notice that he was sometimes obliged to strain before the urine would flow and there was occasionally a dribbling of urine. The physical examination revealed a somewhat enlarged prostate, a hypertrophied heart and a senile emphysema. None of the pathological conditions present were of great importance since they caused little distress or could be easily relieved. It was necessary, however, to improve his general condition. A cane and a pair of shoulder braces were ordered, and he was directed to spend the summer in the dust free atmosphere of the seashore. Incidentally, a pair of well fitting glasses were procured, his diet was regulated, warm baths followed by inunction of the joints with lanoline were taken daily, a mild laxative was taken every day for a week, then at intervals. New diversions, including the care of some potted plants, fishing and making sand pictures, were made part of his daily routine. He had led a hermit life separated from his family, and they had great difficulty in overcoming his objections to this revolutionary regime. Improvement in his general appearance was noted the first day that he was at the seashore, and at the end of three months it was so marked as to cause general comment. The flattering remarks of his neighbors had a beneficial psychic effect. He now made efforts to appear to best advantage, took care of the appearance of his person and dress, went out of doors when he was tired from work, instead of lying down in a stuffy back room, and while he insisted upon earning his livelihood as he had done, he was mentally and physically a changed personality.

In this case there were no advanced degenerative changes, and the result of the initial hygienic measures to improve his appearance was followed by psychic improvement, rousing a spirit of egotism and pride. The arthrosclerosis, which was evidently due to the prolonged, cramped position in which he sat when at work, disappeared.

Worry and care are potent factors in causing early aging. They produce mental depression with consequent mental deterioration, and physical inactivity with consequent lessened metabolic activity, slowed circulation and impaired nutrition of organs and tissues followed by their degeneration.

Case 2. This patient, now aged 65, had an invalid wife who for years had made exorbitant demands upon him and harassed him by charges of neglect and infidelity. At the time of her death three years ago the man looked far older than his years; he had lost all ambition, was depressed, and often expressed the desire to die. The release from his burden only increased his mental and physical depression, since there was now lacking the stimulus of her goading. He became apathetic and worked only to earn enough to obtain the bare necessities of life. Relatives arranged to secure his admission to a home for the aged. He looked old and he said he felt like an old man, but upon examination no marked senile changes were found. There was bradycardia with prominent, filled veins, diminished urinary excretion, chronic constipation, but nothing else of moment. About this time a midde aged widow, a former acquaintance, visited him and succeeded in rousing him from his apathy. He declined to go to the home, began to work with ambition, and after the year of mourning he began a successful courtship. He says now he feels like a young man on his honeymoon, and his appearance corresponds with his feelings.

Case 3. I referred to this case in another paper and mention it here to show how psychic measures may have a sudden rejuvenating effect. This man is now 84 years old and has been in the employ of one firm for seventy years. I have known him for over twenty five years, during which time his only serious ailment was a senile pneumonia ten years ago. When he completed his sixty fifth year with the firm they pensioned him, and for a few days he was like a boy out of school. He soon tired of idleness and sought other employment, but no one wanted to employ a man of his age. He became despondent, and the cheery, hale, hearty old fellow was now a decrepit, pitiful being who felt that he was useless and fit only to die. The firm, learning of this change, sent him word to return to work. His whole attitude suddenly changed, and instead of dragging himself along, as he had been doing for several weeks, he ran to the factory. About six months ago he gave evidences of cerebral arteriosclerosis. He complained of occasional headaches and vertigo, became peevish and complaining, and made mistakes in work which had become a fixed routine in his life. His blood pressure then was 190 mm. The symptoms were relieved and the blood pressure was reduced, under the use of amorphous phosphorus in grain doses four times a day, continued for two months.

The recognition of approaching old age is a frequent cause of the psychic depression which leads to physical inactivity and lessened metabolic activity and slowed circulation. Occasionally loss of sexual virility is the first symptom of advancing age.

Case 4. This man, aged 70, married his third wife five years after the death of the second. A short courtship produced a marked improvement in his mentality and general appearance, but within a few days after his marriage he became depressed and appeared to age rapidly. His friends ascribed the change to excessive sexual indulgence; it was, however, due to the complete loss of erection. Temporary restoration of the tonicity of the organs was brought about through the use of phosphorus, yohimbin, sounds and cold applications and he improved in appearance and mentally. I have seen such marked improvement follow the restoration of sexual functions that where the usual therapeutic measures had failed I did not hesitate to suggest the measures adopted by the servants of David (Kings I. 2).

It is sometimes possible to improve the appearance through psychic measures alone, as when the careworn, apathetic or depressed expression is replaced by an expression of cheerfulness. Cosmetic measures are often employed by women, and for esthetic reasons alone, aside from the secondary psychic effect produced by the flattering comments, similar measures should be taken by elderly men. I have referred to these measures in the paper I mentioned and will not refer to them here. Instead of decrying such measures on the ground of vanity, we ought to encourage them as laudable efforts to retain the spirit of youth and to present an attractive instead of a repulsive appearance.

While it is generally possible through cosmetic measures to improve the objective manifestations of old age, and while it is often possible through psychic measures to improve the subjective manifestations, it is rarely possible to improve the condition of senile degenerated organs. We can sometimes stimulate their functions, but this is not desirable, since excessive stimulation hastens degeneration.

Let us consider for a moment the theoretical causes of senile degeneration. Degeneration implies such a change in the tissue cells that the tissue is altered, and the functional activity of the cells and the tissue which they form is impaired. Every theory of senescence can be carried back to the fundamental problem, the cause of the change in the cell. It may be inherent, as I suggested in the theory of tissue cell evolution and as Minot suggested in his cell theory. It may be due to insufficient nutrition through weakened circulation, diminished caliber of the vessels, viscosity of the blood or diminution in the normal constituents of the blood. It may be due to a change in the pabulum through a change in the proportion of the normal constituents or the presence of abnormal constituents in the blood. It may be due to irritation of the cells by irritating constituents of the blood, mechanical pressure, the presence of waste material, excessive activity, etc. The restoration of degenerate tissue is possible only if the cause can be eliminated, the degenerated cells removed and replaced by new healthy cells. In senile degenerations it is rarely possible to secure these three necessary factors.

The brain cells are permanent and do not reproduce new cells. (This creates a flaw in my theory of tissue cell evolution.) If Minot's theory, that there is a progressive increase in protoplasm with a change in the nucleus and change in the properties of the cell, or the evolutionary theory that later cells differ from earlier ones and devolute after reaching the stage of perfection, is correct, restoration is impossible. It may be possible to retard the progressive changes if these are hastened through excessive activity with consequent more rapid destruction of cells and reproduction of a later type.

It seems to me that the more rapid completion of the normal cycle of life, with early aging, is due to the unequal degeneration of tissues and earlier disturbance of their harmonious relations. This could be obviated through a more equable distribution of mental and physical activity with longer periods for recuperation.

We do not know what is the determining factor in the production of senescence, or if different factors are determining in different cases.

There are undoubtedly some essential and many incidental factors which may hasten the process. Incidental factors can usually be controlled, and where they hasten the process their control may be followed by the reproduction of healthy cells. Degeneration following syphilitic arteriosclerosis is an example.

Increased viscosity of the blood through the retention of lime salts is apparently an essential factor in the process of senescence. This retention may be due to an increased affinity for lime in the aged cells, or to some perversion in metabolism or elimination, or to all three of these factors. In earlier life the excess of retained lime is deposited in joints and other localities as tophi. In old age the lime salts are deposited in blood vessels, cartilage, tendon, bone, brain, etc., rarely as concrete masses, more often as intimate constituents, while some is retained in the blood. If the viscosity of the blood is diminished, permitting it to flow more freely through the vasa vasorum and the fine nutrient vessels of the organs and tissues, the cells would be better nourished, and unless they are well along toward devolution they will respond in greater activity and consequent increased functional activity of the organs and tissues which they form. Herein lies the secret of the success of iodide of potassium in some cases of arteriosclerosis. By diminishing the viscosity of the blood, permitting a freer circulation and thereby increasing the nutrition of the organs, their functional activity is improved. I ascribe the success I have had with the red amorphous phosphorus in senile cases primarily to its withdrawal of lime in its elimination as amorphous phosphate of lime.

It is sometimes possible to trace the cause of degeneration back step by step to the original etiological factor, and it may be found that this factor or one of its progressive results can be controlled, inhibited, retarded or overcome. In case one, for example, the senile cachexia, senile stoop and stiffened joints could be traced to the vitiated atmosphere and the bent and cramped position in which the patient sat when at work. In almost every senile case there is a progressive stoop which can be overcome by the use of shoulder braces and a cane. The braces are at first irksome, and it may require some coaxing to induce the individual to wear them. The benefit derived from the increased expansion of the chest, with resulting increased aeration of the blood is immediately apparent in a better complexion, deeper breathing and relief from the shortness of breath when walking fast or going upstairs. The surface circulation should be stimulated through warm baths and massage. The aged react slowly and imperfectly after a cold bath or shower, and there is always the danger of pulmonary congestion. Surface elimination is diminished in old age, and as diaphoretic drugs are usually also cardiac depressants, the warm bath is the best means to increase surface elimination. It is rarely necessary to stimulate the functional activity of the kidneys, but diminished intestinal peristalsis requires attention. Aloin, cascara and rhubarb are efficient peristaltic stimulants, but aloin, if frequently used, causes passive congestion of the lower bowel and hemorrhoids. Neither belladonna nor atropine should be used in connection with peristaltic stimulants, as they diminish peristalsis. As the intestinal secretions are diminished

I generally give a bland oil as a lubricant. For this purpose a mineral oil (liquid petrolatum, vasoline) which is not absorbed is best.

In the same way we can take each organ and tissue which is not functionating as actively as formerly and determine the cause of diminished activity. In some cases it is possible to improve the condition of the organ; in other cases we may be able to increase its functions or relieve it of part of its functions as we do when using the mineral oil in senile constipation.

The question of food is of vital importance in old age. In the normal process of senescence the loss of teeth occurs about the time the demand or need for animal food by the organism is lessened and the assimilability of such food is diminished. Just as in childhood, meat should not be given until the teeth appear, so in old age no meat should be given when the teeth disappear. This is no argument against the use of artificial teeth in old age. Neither should the use of artificial teeth be made an argument in favor of foods that can or that must be masticated. The loss of the teeth in old age is an indication for changing the food, avoiding those articles that cannot be masticated or crushed in the mouth. This excludes really only meat, since most vegetable foods, including bread, can be crushed or so softened as to be disintegrated before swallowing. Meat products, as soups, juice, etc., should likewise be rejected or used sparingly. Much harm is done by the pernicious "little and often" rule, for digestion is slow in the aged, and this rule imposes excessive work upon the stomach with food in various stages of digestion. "Wine is the milk of old age."

The recreations should receive as careful attention as other factors in the mode of life of the aged individual.

While these measures are primarily hygienic measures for the aged they are inserted here, as their neglect hastens senescence and interferes with our efforts at rejuvenescence. They are discussed at length in the author's forthcoming work, *Diseases of Old Age* (P. Blakiston's Son & Co., Philadelphia).

Any improvement in the physical condition of the organs, with consequent improvement of their functions, will tend to improve the mentality and general appearance of the individual. I have found, however, in the few cases in which I have been able to put my ideas to the test that the three factors involved in rejuvenescence, the physical condition, the general appearance and the mentality must be dealt with individually if we are to get the best and most lasting results. We must remember that the realization of approaching old age through the recognition of its subjective manifestations, produces a mental depression in which these manifestations are exaggerated. These manifestations are due to degenerative changes. When these changes produce distress, as in arthrosclerosis, cerebral arteriosclerosis, and constipation, we can generally relieve the distressing symptoms, if we cannot relieve the degeneration. The most potent measures in bringing about an improvement in mentality are such as will dispel the mental depression; association with the young, flattery, the development of intellectual hobbies, or simple hobbies which will keep the mind pleasurably employed without producing brain fag or physical fatigue, and the restoration of sexual virility. The stimulation of a sense of pride in appearance will overcome the reluctance to employ cosmetic measures to improve the appearance. When one has passed the senile climacteric and the mental deterioration is rapid it is folly to consider rejuvenescence. But until that time it is an advantage to the aged individual and to those who come in contact with him to have him look younger than he is and feel younger than he looks.

CHEMICAL FEEDING

In these modern times of hurry and scurry the socalled "quick lunch" is rapidly becoming adopted by business and even professional men to the detriment, be it said, of their digestive organs. The concentrated food tablet, once sacred to the explorer's kit, now finds a permanent place in the city man's waistcoat pocket or the doctor's bag. A further elaboration of tablet nourishment, both logical and physiological, is the administration of food elements in their primitive state, leaving the body itself to assimilate them according to its needs. It is reported that a Berlin professor has succeeded in keeping a dog alive on food which he prepared synthetically in his laboratory, i. e., only the chemical constituents of the food in their simpler forms were given. The fat was administered in the form of glycerine and sebacic acid, and the necessary carbohydrates in the form of sugar. The synthetic of albumin proved more difficult, but this obstacle was overcome, and the animal seemed to flourish perfectly well on a mixture of simple food constituents. In this manner, supposing the quantities were accurately calculated per body weight, there would be theoretically little, if any, waste at all, so that the excretory system would be almost superfluous, so far as the katabolism of food is concerned. The conditions of every day life and those which obtain in a laboratory are so essentially different that it is improbable that synthetic alimentation will be adopted to the needs of human existence.

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EDITORIALS

AS BROWN AS A BERRY

We frequently hear, when friends meet at this season of the year, the congratulatory expression, "How well you look; as brown as a berry!"

The brown skin of one returning to the city from a vacation to the country or seashore does not denote health, but only that the individual has been much in the sun. The tan or darkened skin shows the effect of nature to protect that portion of the skin exposed to the actinic or chemical rays of the sun, which of themselves are harmful rather than otherwise. Persons residing in or visiting tropical countries where there is much sunshine take on a different color of the exposed parts of the body from that of those living in northern or colder climates where the sun is not so much in evidence or the rays so powerful, being more or less obscured by moisture in the atmosphere. The African negro is not as brown as a berry, but as black as a blackberry, and this through heredity from ages of exposure. The Arab is brown for the same reason. It cannot be said that these people are healthy because of the color of their skin. There is no doubt but that this studied, wilful exposure to the sun's rays by persons unaccustomed to it for the purpose of becoming tanned is harmful. It disturbs the circulation of the blood in the peripheral vessels, blisters the skin, causing it to necrose and peel off, leaving ugly patches, which take all or a greater part of the remainder of the year to regain a normal, soft, pliable and healthy condition. There can be no doubt also but that a continued exposure of the skin to the hot, fierce rays of the sun disturbs the control of the nervous as well as the vasomotor system, and all to what end? That the individual may become as brown as a berry; be in the fashion; a foolish as well as a dangerous fashion.

The fad of going bareheaded in the sun, indulged in by so many of our young men and women, cannot be regarded in any other light than that of great recklessness, if not of positive danger. Indeed, it has been asserted that the reckless driving of autocars and the number of deaths which result therefrom, particularly in the summer months, are in large part due to a brain disturbance caused by going bareheaded in the sun when touring.

HEAT EXHAUSTION AND SUNSTROKE

Heat exhaustion is a loss of body temperature with vasomotor paralysis, and is caused by exertion in high temperature. The condition does not necessarily arise from exposure to direct rays of the sun. It may occur in artificially heated places, for example, in engine rooms; or, in summer, in the workshop, store, office or home, where there is predisposing cause or causes, such as prolonged exposure to impure air or lack of proper ventilation, in weakened or feeble conditions following overwork or illness. Improper feeding or a sedentary habit are contributory causes of heat exhaustion.

The symptoms of heat exhaustion are: Profound prostration with pallor, vertigo, possibly loss of vision, cold perspiration to be followed by partial or complete unconsciousness. The pulse is extremely feeble, there is increasing restlessness, and at times muttering delirium. Cases have been reported with a temperature of 95 degrees Fahrenheit.

Treatment of heat exhaustion will consist of a recumbent position with the head lower than the body, loosening of the clothes, the administering of diffusible stimulants by the mouth, if possible—brandy, whiskey; ammonia by inhalation. If the patient is unable to swallow, hypodermics of digitalis and strychnia. Friction to the extremities, together with dry heat by hot water bags; bottles heated with hot water or hot dry flannels. When consciousness returns, rest with perfect quiet.

Sunstroke or heat fever will generally follow exposure to the direct rays of the sun. This condition is usually a much more serious one than is heat exhaustion. A humid atmosphere which interferes with perspiration or evaporation of the sweat acts as a predisposing cause, as does intemperance in eating or drinking.

The symptoms of heat fever, a term which we regard as preferable to sunstroke, are a sense of burning heat of the whole body with a feeling of oppression. If this is followed by prostration the victim becomes quickly unconscious or comatose, dying at times instantly, at other times within a very few hours. In less severe cases there will be headache, dizziness, oppression, nausea, vomiting, occasionally diarrhea. There may be colored vision, to be quickly followed by muttering delirium and intense restlessness, flushed face, hot dry skin, and a temperature much above normal—107-112 degrees Fahrenheit. There is labored or stertorous breathing, pulse frequent and full, pupils dilated at first, followed by contraction; scanty urine, with at times twitching of the muscles, and occasionally epileptiform convulsions. The skin may become moist, but the perspiration when it exists does not lower the temperature. Death, where it occurs, follows in a few hours. The favorable symptom will be a gradual fall of temperature. Recovery is not complete, as there is apt to follow a weakness or incapacity for sustained mental efforts, while an unusually high temperature brings on severe headache.

Treatment for heat fever (sunstroke) will consist in reducing the temperature. The patient should be placed, if possible, in a cold bath with ice added, or completely stripped and placed on a stretcher or cot and tap water or water direct from the hydrant played through a hose or sprinkler upon the entire body from a considerable height. The head in the meantime should be packed in cracked ice or swathed in cloths wrung partly dry only, from ice water or water as cold as procurable. Ice water may be injected into the bowels. The applications of ice or cold water should be gradually withdrawn as soon as the temperature declines. If there are convulsions, administer chloroform at intervals sufficiently apart to control them; if heart failure, digitalin or strychnine hypodermically; in asphyxia bleeding is called for.

Finally, it is most important that the diagnosis between heat exhaustion and heat fever be clearly and quickly made, as the treatment is entirely different. In heat exhaustion, stimulants and external heat with friction. In heat fever, cold externally and by rectum until temperature approaches normal. The thermometer will quickly and surely determine the diagnosis—subnormal temperature, heat exhaustion; a high temperature, heat fever.

"THERE IS NOTHING GOOD OR BAD BUT THINKING MAKES IT SO."

It has been asserted, we believe, that to the pure all things are pure, but is this really true? Should it not rather have been stated that to the pure nothing is pure? It would seem that numbers of our citizens suffer from mental strabismus; are constantly on the lookout for, from their point of view, inaccuracies of thought or action; they establish a mental and moral standard from self study, introspection, and what they find through introspection is good; all else questionable. "There is nothing good or bad but thinking makes it so" is altered to: "To the pure, all things are impure." A moral is quickly in evidence in witnessing the play, an opera; even the entrances and exits are lacking in decorum. And as for paintings, engravings, statuary, the human figure, if in evidence at all, must be severely clothed from the chin to the ground; not so much as the suggestion of nudity can be tolerated. We will admit that there is much that is vile on this good old world of ours. Sensation mongers, money and notoriety seekers are ever in evidence, for withal there are no two persons alike either mentally or physically, but prudery, bigotry, narrowmindedness, is personal, individual, and for a few self-appointed arbiters of refinement, morals to seek to govern thought is most selfishly offensive.

"There is nothing good or bad but thinking makes it so." It is the pure minded that see the beautiful, that enjoy life; not the grouch, the kill-joy, who is constantly skulking in dark places, seeking for immorality in some shape or other, accentuating molehills into mountains, ever looking for motes in their fellows' eyes instead of visiting the oculist.

THE CONDITION OF THE TEETH IN RELATION TO DISEASE ESPECIALLY TO PULMONARY TUBERCULOSIS

It is becoming more and more borne in upon the minds of the people at large as well as upon the minds of the members of the medical profession that in order to conserve health it is essential to keep the mouth and teeth in a clean and sound condition. In fact, the hygiene of the mouth and the proper care of the teeth are now generally recognized as among the most important factors in the prevention of disease. Bland Sutton has said that the mouth, owing to its thermal conditions, its atmosphere, and abundance of food favorable to the incubation of organisms of every description, is a veritable bacterial zoological garden. In short, there is no doubt now that oral sepsis is mainly responsible for or greatly contributory to innumerable diseases of a chronic nature and to various functional affections. Of course, it is obvious that in many ways bad teeth and dirty mouths tend to bring on and to aggravate pulmonary tuberculosis. The most obvious mode in which bad teeth will thus act is by faulty mastication. To masticate properly, one must possess sound teeth, artificial teeth or firm gums. Of these, sound teeth are to be preferred, and lacking this almost priceless possession, artificial teeth skilfully and firmly inserted are the most effective means by which mastication can be adequately performed. It stands to reason that if a person has a septic mouth, loose teeth with suppurating gums, proper mastication is out of the question, and in consequence appetite is absent, taste is vitiated and the entire alimentary canal is infected. No measures that can be undertaken are of any avail so long as mouth conditions preventing mastication are at fault, and in the case of the tuberculous individual, such a state of affairs unless remedied is fatal.

In the *Medical Press and Circular*, January 8, 1912, Mr. George Thomson, L.D.S., sets himself the task of discovering whether there is any intimate relation between pathogenic oral conditions and phthisis. The writer approaches the subject from the outlook of the dental surgeon, and disclaims having any special knowledge. However, as the question is discussed throughout with sound common sense, it is worthy of consideration. Thomson states his conviction that the prevention of dental caries will do more directly and indirectly toward the prevention of tuberculosis than any other method that has yet been conceived. He argues that it matters little whether consumption is due to bacterial invasion and symbiotic associations, or whether the disease may be regarded as a general depression of vital resistances and a condition of malnutrition, the fact remains that dirty conditions favor the multiplication of foes, and in the first case food and soil are provided for bacteria and in the other case that resistances are lowered by stagnation areas and infective foci. He shows that a dirty mouth and bad teeth provide the most favorable unclean conditions by far by which latent susceptibility to pulmonary tuberculosis may be aroused and by which the disease when present may be augmented. Furthermore, Philip and others have demonstrated that tuberculosis is a malady of childhood, and Denison Pedley claims that if this be so that the time to prevent and to finally extirpate it is by furnishing children with adequate weapons with which to fight it successfully. A clean aseptic condition of the mouth and teeth with which food can be thoroughly masticated are the chief weapons of defense against the onslaughts of tuberculosis. Dr. Guecini, of Naples, has pointed out a bad state of the dental system as damaging digestion, which ends by damaging inevitably every one of the nutritive functions, including sanguinification. Finally if we accept the dictum that "the soil much more than the seed controls the disease," the harmful rôle of oral sepsis in childhood in favoring the lodgment of tubercle bacilli cannot but be obvious to all.

In the campaign against tuberculosis which is being carried on in every part of the civilized world, the care of the mouth and teeth must be always considered. Without undue exaggeration the statement may be made that so long as the teeth of children are neglected so long will tuberculosis flourish. A suitable soil and favorable environment for the growth of the disease germs are provided, the vital resistance of the system is lowered by malnutrition, consequent upon insufficient mastication bringing about indigestion, and in short the disease is encouraged in every way. In order to defend the race against the ravages of tuberculosis the first line of defense is the mouth, the portal of the body. Fortify this strongly and the body will be impregnable.

WHAT RELATION, IF ANY, HAVE THE TONSILS TO PULMONARY TUBERCULOSIS?

In a recent article on this subject, Dr. E. Fletcher Ingals, of Chicago, said that during the past fifteen years many articles had appeared in medical journals on the relation of the tonsils to pulmonary tuberculosis. At the early part of this period it was frequently claimed that the tonsils were a common portal of infection for the pulmonary disease, but subsequent research demonstrated that the tubercle bacilli might penetrate the tonsils and pass through them to the lymphatic cervical glands, causing tuberculosis of the latter, without any involvement of the faucial tonsils. It was shown, however, that there was no connection between the cervical glands and the pulmonary lymphatics. In a small percentage of cases the tonsils appeared to be primarily involved in cases of pulmonary tuberculosis, but usually tubercular changes in these glands were secondary, and the bacilli appeared to have been absorbed from the sputum. It had been shown that the tonsils were the portal of entrance for the tubercle bacilli in many cases of tubercular cervical adenitis, yet inflammation of the cervical glands, nontubercular in character, appeared to be much more frequently due to absorption of infection through the tonsils. The consensus of opinion now was that pulmonary tuberculosis was generally a systemic infection of aerogenous origin, and that when the tubercle bacilli were taken up by the lymphatics they were poured into the general circulation. In pulmonary tuberculosis the bronchial glands may be primarily involved, but this did not appear to be the usual course of the disease. In a recent statement, one of the best known pathologists said that he did not think there was any relation between diseases of the tonsils and pulmonary tuberculosis.

AN EUGENIC PARADOX.

We are informed by Dr. William T. Salmon in White and Jelliff's recent work on Mental Diseases that nearly one-third of the immigrants certified as insane or mentally defective arriving at Ellis Island, New York, by the Public Health Service are Jews, although the Jews constituted only fourteen per cent. of the total immigration.

In commenting upon these surprising facts, the *New York Medical*

Journal, quoting Friedmann in the J. A. M. A., March 9, 1912, ascribed this eugenic paradox to the close inbreeding of the Hebrew race or to racial incest or consanguinity. "In human beings, as in other species, crossings between different species, produces hybridism; breeding exclusively in one line or variety of species—consanguinity—is equally harmful. In the human race this seems to produce organisms prone to mental disorder and defect. Mating in the same branch of a race can bring no new determiner to that branch, or opportunity for the exercise of selective evolution, for recessive characteristics are retained to be emphasized at some future time in the form of a distinct defect. Intermarriages between Jew and Gentile have produced remarkable specimens both mentally and physically. Even marriages between Jews of different nationalities have been better; showing the influence of environment in the physical characteristics of the same race. The same rule will hold for crossings between other nationalities, such, for instance, the Anglo-Saxons and Latins. But crossings between different races, the Caucasian and negro, or Caucasian and Mongolian, has the tendency to produce hybrids or mongrels."

Perfect man can come only from matings of the fittest, but between branches of the same race; from the highly developed, alloyed with the cruder. Immigration, therefore, if properly sifted of the defective would prove advantageous. The difficulty will be to detect and exclude the undesirable, the unfit. Even then the supposedly normal may have recessive characteristics inactive or inert for them which they can transmit to their offspring, in whom they become dominant characteristics.

AS OTHERS SEE US.

In an article recently published in the *New Orleans Medical Journal,* Dr. Howard D. King makes a protest, on sociological grounds, against the importation of foundlings from New York for distribution in the State of Louisiana, and this is what he calls us: "Consider for a moment where these babies come from—New York City—that great clearing house of crime and misfortune; the shore on which is washed up the débris of wrecked lives; the human wreak heap of America." Ouch!

DIGEST OF CURRENT MEDICAL LITERATURE

The Menace to the Public by Feeble Minded Persons Living Outside of Institutions.—In the government census of 1890 (Thodore Diller, Illinois *Medical Journal*, September, 1912), the number of feeble minded was reported as 95,000, of whom only 5,200 were found in special institutions; and another 2,500 were in asylums for the insane. The number of feeble minded persons in the United States, that is, those so pronouncedly feeble minded as to stand in need of institutional treatment, was estimated in 1904 by John Koren, expert and special agent for the United States Census Bureau, at 150,000. Koren reports only about one ninth of this whole number, or about 17,000, as residing in institutions especially intended for the feeble minded. He further estimates that an additional 16,000 feeble minded persons were inmates of almshouses. In round numbers, then, according to this estimate, 33,000, or one fifth of the entire number of feeble minded persons in the United States, were found in institutions; and four fifths, or 120,000, were living outside institutions in 1904. The number of feeble minded in special institutions had grown from 5,000 in 1890 to 17,000 in 1904.

Dr. Joseph Neff, Director of Department of Health at Philadelphia, estimates that there is one feeble minded person to every 500 of population in Pennsylvania. The statistics of Tredgold for England indicate a much higher proportion of feeble minded for that country.

In this estimate merely backward and deficient persons of types not greatly pronounced are not being considered. But enough has been said to show that the vast majority, at least four fifths of all pronouncedly feeble minded persons in the United States, are living outside institutions; and of the other fifth, only one half of them are living in the proper kind of institutions, i. e., institutions especially equipped for the feeble minded; and the other one half are living in almshouses, which are not properly adapted for these individuals and where they cannot be properly protected.

What are the dangers to the public from feeble minded persons living outside institutions? These dangers are manifold and most of them very obvious. The first and most striking risk to society is the propagation of feeble minded by individuals of their kind. I believe it is now so well established that the most conspicuous cause of feeble mindedness is heredity that no argument need be used to support this proposition. The famous Jukes family, with their long history of generations of feeble mindedness, degeneracy, prostitution, and criminality, is well known. The recent work of Dr. H. H. Goddard, of the New Jersey Training School for Feeble Minded Children at Vineland, N. J., shows in a clear and convincing way the terrible effects of heredity as the cause of feeble mindedness, and that feeble mindedness very often means vagrancy, degeneracy, prostitution, and criminality.

Dr. Neff has shown that feeble minded women in general are more prolific than normal women, and that practically all of them become mothers soon after the age of puberty. To support his contention he has cited many illustrative cases.

Hence it becomes perfectly obvious that the greatest source of production of feeble mindedness is propagation of the feeble minded by the feeble minded. Imbecility is never cured—once an imbecile always an imbecile. Can it be prevented! It would appear clear that our only hope of reducing it must be in the prevention of it. And it would appear plain that if we can prevent the feeble minded from propagating their kind, we will do much—very much to prevent and decrease imbecility.

Can this be done? Should it be done? How can it be done?

While many feeble minded persons are regarded as harmless aside from the danger of begetting offspring, it must be remembered that probably the majority of them possess more or less degenerate instincts and are capable of committing murder, arson, rape, and other serious crimes. Moreover, the great majority of them are inadequately cared for and others are ill treated or abused in various ways.

What should be done with this terrible problem of the feeble minded before us? We have seen that the capacity of specially adapted institutions for the feeble minded grew from 5,000 in 1890 to 17,000 in 1904; so it would appear that the need of these special institutions is being more commonly and generally recognized.

What shall be done? I would advocate that the several States shall as speedily as possible possess themselves of adequate accomodations for feeble minded persons within their borders. But as a preliminary step to this end, I would advocate that each State ascertain the name and address of all feeble minded persons residing within its borders. Diligent search over two or three years would probably bring out a fairly complete list of feeble minded persons. For we must remember, "once feeble minded,—always feeble minded." And the obviously feeble minded which is now considered could with a little pains and industry be ascertained. And then I would have the law so shaped that the State, through a proper board and executive officer, should determine the question as to whether a particular feeble minded person should be allowed to remain at home or whether he should go to an institution, subject of course to the limitation of accommodations. At present in the State of Pennsylvania (and I presume it is likely the case in other States) the question of whether a feeble minded person shall go to an institution or not, or if already there, as to whether or not he shall remain there, is in the hands of the parents of such a person—the very individuals who are least competent to decide it rightly. I have had numerous experiences where I have strongly advised that a feeble minded child be sent to an institution for the good of the child, for the good of the parent, and for the good of the public, and where the parents have declined to take the step. Also I have had the experience of seeing feeble minded persons taken to an institution and brought away from it against the advice of the superintendent and of myself. In short, this very important and fundamental question of admission and discharge from institutions for the feeble minded is decided by the parents of the feeble minded; and the institution or the family physician has only advisory powers. This is obviously and radically wrong and should be corrected; it could be corrected if the State made a census of all feeble minded and for the good of its citizens took authority to send any feeble minded child to the proper institution and compelled him to stay there until it saw fit to release him. All this is only right and proper; and if the State wishes to protect itself from the propagation of imbeciles by imbeciles and from the dangers of arson, rape, and other crimes, and if the feeble minded persons are to be protected from neglect, cruelty, and abuse, such measures as I have indicated must, I believe, be taken.

All this means a great undertaking, as I am well aware. But surely it is best to face this great problem fairly and squarely as it exists before us. Other questions come up in connection with this question. As for example, whether sterilization of feeble minded men and women is right and proper and expedient. This thing might be done and might have its proper place in a comprehensive State law; but I regard it as secondary in importance, but if needful it too should be employed. No imbecile woman of child-bearing age should be allowed to live outside an institution unless she is sterile.

How Much of Eugenics is Scientific.—Dr. Charles F. Nammack, *New York Medical Journal*, April 12, 1913, states that while it is indisputable that heredity may be responsible for many physical defects, for a vulnerable nervous system, and for the direct transmission of certain blood diseases, it has never been proved that acquired characters, such as criminality, alcoholism, and sexual immorality, are transmissible by hereditary influence or are inherent qualities of the germ cell. Those who uphold the theory of the primacy of heredity, rest their case upon the occurrence of insanity in families, or upon such abnormal physical conditions as congenital deafness, color blindness, supernumerary digits or brachydactyly, in which the fingers have one joint less than normal, or congenital cataract or night blindness, in which the affected individual cannot see in dull light. But all these cases come under the heading of inherited defect of the somatic or body cells of the parent, and in no wise depend upon the qualities of the germ cells. The most careful analysis of the statistics of the biometricians or the most elaborate deductions of the Mendelians serve but to show that the value of the intensity of inheritance relates to stature, eye color, physical ability, or tendency to congenital disease. Even the common belief that the children of alcoholic parents are deficient in health, intelligence, or physical development has recently been upset by the studies of some 1,400 children in the schools of Edinburgh. That brilliantly successful advertising genius, Mr. George Bernard Shaw, in his usual luminous fashion, sums up the situation in the epigram: "The bubble of heredity has been pricked." We cannot compare a human soul to a plant, the future life of which is admittedly determined in advance. A human being may bring into the world with him the future shape of his body, but he does not bring in his mind, his character, his free will, his entire disposition. We still have the comfort of knowing that all these can be moulded by education, and especially by moral education, the biometricians to the contrary notwithstanding. Yet Sir Francis Galton, himself secure in the serene contemplation of an unblemished intellectual hereditary tree, would have us believe that culture, gentleness, fearlessness, truth seeking, and intelligence have been in large measure weeded out from the human stock, partly by the rule of celibacy, partly by persecution, for both of which he accuses the Church of the Middle Ages of being responsible. For, he says, whenever a man or woman was possessed of a gentle nature that fitted him or her to deeds of charity, to meditation, to literature, or to art, they had no refuge elsewhere than in the bosom of the Church, which then exacted celibacy from them, and so left us none but brutes for forefathers. Galton also asserts that not content with that, the Church, by means of persecutions, brought thousands of the foremost thinkers and men of political aptitude to the scaffold or imprisoned them during a large part of their manhood or drove them as emigrants into other lands. And having unburdened himself of these calm judicial utterances, the placid Sir Francis goes on to say that in consequence of this inbred imperfection of our natures, there is now no health in us.

SOCIETY REPORTS

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK, MAY 20, 1913

At the regular meeting of the Medical Association, Dr. Thomas Darlington demonstrated a new water filter, one of the important features of which was a special arrangement of two layers of asbestos. Most of the filters on the market, he said, did not remove the bacteria, but, from actual tests made it had been found that this apparatus would stop the passage of no less than ninety one and a half per cent. of those in the water. It also completely removed all coloring matter from the water, even aniline dyes, which were exceptionally difficult to get rid of. In addition, it gave a very large flow of water, and Dr. Darlington thought it would be particularly useful for troops on the march.

"The work of the United States Army Surgeons in the last few years: Tropical diseases." This was the general topic of the evening, and in a few introductory remarks, the President, Dr. Reynold Webb Wilcox, referred to the brilliant scientific achievements of our army surgeons in sanitation and the conquest of disease. Not only had they made great scientific discoveries, but, by the practical application of their knowledge, they had accomplished such results in Cuba, Porto Rico, the Philippine Islands and Panama as to win the admiration of the world.

"Observations on Beriberi in Japan and the Philippines." Major Lewis G. Hess, Medical Corps, U. S. Army, read a paper on this subject, in which he brought out the following points:

"1. Recent investigation into the etiology of beriberi, and observation of the disease among the native troops and natives of the Philippine Islands and the numerous cases occurring in the Japanese army during the Russo Japanese War, would indicate that beriberi was due more to lack of nitrogenous food, and a diet largely composed of carbohydrates, than to a specific organism. At least, diet was an important predisposing factor in its causation.

"2. While beriberi was apt to occur endemically and epidemically, it was extremely doubtful whether it was contagious, or could be transmitted from man to man. Hence, it should not be classified in the category of infectious or contagious diseases. If beriberi were caused by a specific organism, this certainly could not have any pathogenic action upon healthy and well nourished individuals. It was possible that individuals who subsisted largely on a diet mainly nitrogenous had a natural immunity against the specific organism of beriberi, and that this organism could act only on individuals who had a lowered resistance by the use of food consisting largely of carbohydrates, and in the presence of certain meteorological and other conditions.

"3. The results and findings of the United States Army Board of Medical Officers for the study of tropical diseases as they exist in the Philippine Islands, on the influence of rice diet and inanition in the production of multiple neuritis in fowls, and the bearing thereof on the etiology of beriberi was a further proof that the lack of nitrogenous food and the excess of carbohydrates constituted an important factor in its etiology, if not the specific cause. As the result of a series of experiments on chickens, they were able to produce in the birds a multiple neuritis similar to that occurring in human beings suffering from beriberi by feeding them on polished rice; and, on the other hand, were able to cure them by feeding them on the polishings of rice, or the pericarp of the rice; while fowls fed on undermilled rice (that with some of the pericarp left on) did not become affected with a neuritis. Chickens and other fowls were very prone to be attacked with a full neuritis under certain conditions, and it was believed that these experiments pointed strongly toward rice as constituting an important factor in the causation of beriberi. By way of confirmation of the experiments, the rice in the ration of the native scouts in the Philippine Islands (of which it largely consisted) was changed to the native rice, which was undermilled; and the result was the complete disappearance of beriberi among them.

"4. Beriberi had always been classed as an unpreventable disease, and was so considered by the Japanese, who reported over 97,000 cases during the Russo Japanese War. It should now be classed as a preventable disease, and there was no excuse for its occurrence among troops, any more than there was for that of smallpox, typhoid fever, dysentery, cholera, and similar diseases which in the past had at times almost rendered soldiers ineffective, and had often been a potent factor in deciding results between contending armies. As a matter of fact, Major Hess said, there was reason to believe that the wide prevalence of beriberi in the Japanese army had had a very considerable influence in bringing about the termination of the late war. In regard to the very considerable immunity from typhoid fever among the Japanese troops, about which so much had been said, this was practically due to the simple facts that the Japanese were extremely fond of tea (the water used thus being boiled) and of cooked foods; and the same thing was true of the Russians. On the other hand, our soldiers in the Spanish American War did not like tea and drank much water, while they preferred raw to cooked foods. There was, however, some typhoid fever among the Japanese in the war with Russia; the number of cases, according to their own reports, amounting to more than 9,000, while there were over 4,000 deaths, a mortality of nearly fifty per cent. Among the Russians there were a little over 10,000 cases, but there were only about 1,000 deaths, a mortality of one fourth that among the Japanese."

"Dysentery in the Tropics." Major Eugene R. Whitmore, Medical Corps, U. S. Army, in this paper, said that this disease was one of the chief causes of death in the tropics. It had been stated, with truth, that it was a more potent factor in the death rate than malaria, although the latter caused more illness. Two types of dysentery were recognized, amebic and bacillary, and these differed in cause and morbid anatomy, and required different treatment. Amebic dysentery was endemic and did not ordinarily give rise to epidemic; bacillary dysentery gave rise to extensive epidemics. Amebic dysentery was due to a protozoon, bacillary dysentery to a bacillus. In amebic dysentery the process began in the submucosa, from the specific tissue destroying properties of the amebae which had traveled in through the mucosa; bacillary dysentery was a diphtheritic or croupous process, involving the intestinal mucosa, while the submucosa was only secondarily involved. Liver abscess was a frequent complication in amebic dysentery, but very rare in bacillary dysentery. Amebic dysentery tended to become chronic, with frequent relapses; bacillary dysentery was a self limited disease, with a tendency to complete recovery. Ipecac, in the form of emetin, was specific in amebic dysentery, while a specific antitoxin and bacterial serum gave the best results in the treatment of bacillary dysentery. The amebae were found only rarely in the small intestine, but sometimes might be confined to the appendix alone; which would explain the presence of amebae without dysentery. The dysentery bacilli frequently got into the small intestine. Hepatic abscess was the most common complication in amebic dysentery, and in all the ulcerations in this affection, whether in the liver or the intestines, there was a striking absence of purulent inflammation. The amebae might travel not only into the liver, but also into the pleural cavity and elsewhere. Still, liver abscess was the greatest danger to be apprehended, although perforation of the bowel was not uncommon. The symptoms of the two forms of dysentery, the amebic and the bacillary, were the same; so that clinically it was impossible to make a differential diagnosis between the two. From an examination of the stools it was never safe to say that amebae were present unless one could discover them actually moving. Ipecac had long been highly esteemed in the treatment of dysentery, but, on account of the difficulties met with in connection with its administration, the remedy was often almost as bad as the disease. The attempt had been made to employ deemetized ipecac, but this was found to have no effect in dysentery. Vedder had demonstrated, however, that emetin killed cultures of amebae, and this principle of the drug was now commonly used in the treatment of amebic dysentery. It was perferably given hypodermically in doses of from 1/10 grain to 1 grain, once daily. Allen had administered it in doses up to 4 2/10 grains.

In the bacillary type of dysentery there were two groups. The bacillus of the first was discovered by Shiga, the Japanese investigator, in 1898, and in 1900 Flexner confirmed this and announced a second group, though at first he believed that the bacillus he had discovered was identical with Shiga's. The Shiga group was now recognized as the toxic group, and the Flexner as the atoxic group. The latter, in which there were several strains, was not really atoxic—it was simply less toxic than the Shiga group. The morbid anatomy and symptoms, as well as the treatment of the disease, were the same in the two groups, but the Shiga type of dysentery was the more fatal. Amebic dysentery was usually subacute from the first and tended to progress indefinitely, and in this respect was very different from the bacillary form, which was an acute affection, and, as had been mentioned, self limited and had a tendency to complete recovery. In some instances, however, the latter became subacute or chronic, and this was probably the condition in the cases of chronic diarrhea which were noted among the soldiers of the Civil War. There were sometimes joint complications, somewhat of the nature of general arthritis, but, in contrast to amebic dysentery, peritonitis, bowel perforation, and liver abscess were rare. From the intoxication of the system, neuritis was not uncommon. The bacilli could be isolated from the stools and also from the superficial part of the intestines. In this form of dysentery ipecac was of no practical value While the disease was self limited and essentially tended to recovery, in the Shiga type there was a mortality of from twenty to sixty per cent. No medicinal agent seemed to have any control over bacillary dysentery, but very good results had been obtained from the use of serum therapy. The remedies of this class employed were Shiga's bactericidal serum and Rosenthal's antitoxin and bactericidal serum. The speaker said he could not see that intestinal irrigation was of much benefit in acute cases or in the early stages of amebic dysentery, but he thought it might be of value in chronic cases.

Dr. Nathan S. Jarvis referred to the views on the tolerance of the white man in the tropics expressed by the noted sociologist Benjamin Kidd in his book entitled *The Control of the Tropics,* which was published no longer ago than 1898. It was then the practice in the British army to allow officers who had served one year on the west coast of Africa a year's leave, and this was also the rule in regard to those serving in India. This was on account of the conditions, so unfavorable to the white race, prevailing in those tropical regions. Now, however, it was possible for the white man to live indefinitely, and live comfortably, in the tropics. This was very largely owing to. the splendid work accomplished by the medical officers of our army, and the praise which was their due should be unstinted. At the same time, it should not be forgotten that in recent years the army surgeons had had the warm cooperation of the line officers, and such results could not have been attained without this. Formerly the case was different, and he could well remember that twenty years ago, when he himself was in the army medical corps, it was almost impossible to get a line officer to take any interest whatever in sanitary matters. Panama might be cited as an instance of the marvelous change which had been effected.

In regard to the freedom from disease of the Japanese in the late war with Russia, this had undoubtedly been exaggerated, but he would say in justice to some of those who had extolled the sanitary triumphs of the Japanese, that they had been deceived by the latter; for the reports which were furnished to them were both very incomplete and very erroneous. We should not lose sight of the fact, however, that the discipline in the Japanese army was really wonderful. In the case of volunteers, such as our army was largely composed of in the Spanish-American War, it took a year or two before the men could be depended upon to obey orders in a reasonably satisfactory manner. The results accomplished by the Japanese had, as he had said, been exaggerated; but they did get results, and this was due to their efficient discipline.

THE AMERICAN DERMATOLOGICAL ASSOCIATION

In an article on the subject of Salvarsan and Neosalvarsan in Syphilis, which was presented at the recent meeting of the American Dermatological Association in Washington by Dr. Henry T. Whitehouse and Dr. A. Schuyler Clark of New York, the readers offered the following conclusions: (1) Healing was as prompt and sure after neosalvarsan as after salvarsan, whether the disease was primary, secondary or tertiary. (2) If a given lesion failed to heal under repeated injections of either, it was in all probability not syphilitic. (3) Serologically and curatively, both were more effective in primary and secondary cases than in tertiary. (4) The combined method with mercury should be used with both, in all stages of syphilis. (5) Nearly 20 per cent. more permanently negative results were obtained in all stages by salvarsan than by neosalvarsan. (6) Five doses of neosalvarsan would seem to be required as against fuor of salvarsan to obtain the same end results. (7) Twenty per cent. of cases under salvarsan showed reactions of some kind against eight per cent. under neosalvarsan, although twice as many of the latter were the severe toxic type, as compared with those of the former. (8) There was less thrombosis and less inflammation in the tissues following leakage from neosalvarsan than from salvarsan. (9) Apparently, one injection of either the old or the new was insufficient, being effective only in cases preceded or followed by mercury. The efficiency of both increased with the frequency of the repetition of the dose.

THERAPEUTIC PROGRESS

Benzol in Leucocythemia.—O. A. Roesler, *Wiener Klinische Wochenschrift,* May 15, 1913, reports two cases in which great benefit seemed to result from treatment with benzol, though final judgment cannot be passed upon the results as yet.

Scarlet Red in Atrophic Rhinitis and Ozena.—Jacobs, *New York Med. Journal,* May 31, 1913, reports scarlet red as a suitable agent for treatment of atrophic rhinitis and ozena, which may be applied to the mucous membrane without producing constitutional symptoms. It is best administered in mucilage of acacia.

Valamin.—Stein, *Medizinische Klinik,* May 18, 1913, reports on this, a new sedative and hypnotic, the valerianic acid ester of amylhydrate. He reports good results in neurasthenic patients with insomnia. In one case there was slight excitement observed. Dose 0.5 to 0.75 gram (7½ to 12 grains) given in capsules of 0.25 gram (4 grains) each.

Arsenical Paralysis.—Obermiller, *Berliner Klinische Wochenschrift,* May 26, 1913, reports his conclusions from his own observations as well as those of other observers that the unfavorable results which have been noted from salvarsan and neosalvarsan are purely symptoms of arsenical poisoning, and that cerebrospinal accidents which are reported to occur from their use represent nothing more and should, therefore, be avoidable.

The Action of Adrenalin on the Coronary Arteries.—F. Meyer, *Berliner Klinische Wochenschrift,* May 12, 1913, through experimenting on animals, found that the administration of adrenalin produces a remarkable acceleration of the coronary circulation, the result of increased blood pressure, from the heightened action of the heart. As reported by other authors adrenalin causes an increase in the caliber of the coronary vessels, as well as an increased flow of blood through them.

Use of Sugar in Heart Disease.—Denyer, *The Lancet,* April 19, 1913, writes that physiological experiments prove a nutritive value for sugar in reference especially to the heart muscle. Clinically, the physiological experiments have shown that in certain forms of heart disease, sugar gives good results. Cases of edema, anginal pain and cases in which cardiac disease is secondary to renal disease, do not improve from sugar treatment. The author employed sugar in a case of general paralysis of the insane without effect.

Istizin.—Ebstein, *Medizinsche Klinik,* May 4, 1913, states that istizin is chemically dioxyanthiachinone; that it is soluble in water and tasteless. It is particularly useful for those bedridden patients in need of help to bring about evacuations, for the aged and those suffering from obstinate constipation. Aside from its laxative properties it has no pharmacological action, nor does it disturb the digestive apparatus or irritate the kidneys. Occasionally it causes mild cramps of short duration. The dose is 0.3 gm. (5 grains) taken at night dissolved in water.

Combined Salvarsan Mercury Treatment of Syphilis.—Stumpke, in *Deutsche Medizinische Wochenscrift,* February 27, 1913, reports a belief that the superiority of the combined treatment by salvarsan and mercury is in evidence from day to day. Further, he asserts that the intravenous and intramuscular injection of salvarsan in the same individual seems to be more efficacious than the single method. In thirty five out of fifty cases in the primary stage with a negative Wassermann, the appearance of the secondary symptoms was delayed for three months, thus giving time for clinical observations.

Diuretin in Acute Experimental Nephritis.—Christian and O'Hare, *Archives of Internal Medicine,* May, 1913, produced acute nephritis with uranium nitrate in a large number of rabbits and gave diuretin in amounts varying from large doses to doses equivalent to one gram dose in the human subject. The results confirmed the view that in severe acute nephritis a diuretic such as diuretin is contraindicated, as in the experiments diuretin shortened the life of the animals. On the other hand, of the survivors three fourths had received diuretin. This would indicate that in the less severe cases the drug may be beneficial, and so justify its cautious use in moderately severe cases of acute nephritis.

Hot Baths in the Treatment of Sprains.—Kantorowicz, in the *Medizinische Klinik,* May 11, 1913, writes that for a decade he had replaced the former lead water applications for sprains with the prolonged local hot bath. In sprains there is extravasation of blood rather than inflammatory processes, the result of torn ligaments. In using the hot bath treatment he places the injured joint or other parts in as hot water as can be borne immediately after the injury; adds hot water every five minutes to maintain the high temperature, and continues this for half an hour. In cases of simple sprain the relief is astonishing. Should there be bone injuries, the hot water would increase the patient's sufferings. In this way it is a means of differentiating between fracture and sprain.

Atropine in Gastric Affections.—Pletney, in *Semaine medicale,* March 26, 1913, is reported to have stated that while atropine can at best only constitute a symptomatic measure in the treatment of stomach disorders, it deserves to be much more widely used than has hitherto been the case. Where gastric acidity is increased, atropine will reduce it indirectly by diminishing the amount of gastric juice secreted, so that a greater proportion of it will be neutralized by the alkaline mucus present. In pyloric spasm atropine also gives relief, in part by reducing acidity, also by its direct antispasmodic action, as is indicated by the fact that hourglass contraction of functional origin is similarly removed. In cases of hyperacidity or gastric ulcer pain, a favorable influence is evident when atropine is used. It is preferable in these cases to morphine because the latter, after temporarily reducing the secretion of gastric juice, excites glandular activity.

BOOK REVIEWS

Gonorrhea in Women. Its Pathology, Symptomatology, Diagnosis, and Treatment: Together with a review of the rare varieties of the disease which occur in men, women and children. By Charles C. Norris, M.D., Instructor in Gynecology at the University of Pennsylvania. Octavo of 521 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, $6.00 net; half morocco, $7.50 net.

It can be truthfully said that this new work is one of the really important books of the year, not only for the physician, but the surgeon, specialist, legislator and sociologist. Chapter one gives a most interesting history of gonorrhea, leading back to the earliest records to be found. It is true that what is really known of the early history of gonorrhea is untrustworthy, and many are the speculations concerning its origin. Our author informs us that Galen described the condition as an involuntary escape of semen; the word being derived from the Greek words signifying seed and flow. This chapter is historic and helps to clear up the much discussed question of the origin of gonorrhea.

We are next conducted through the bacteriology of gonorrhea. This is a most important chapter, for herein is given the only measures employed to surely determine the diagnosis, which is, as all must admit, essential to speedy and proper treatment.

The chapters on sociology, prostitution and prophylaxis will be found timely and broadly treated. It seems a pity that writers and medical editors are forced to continually dwell upon the havoc wrought in the destruction of the eyesight of newborn infants as a result of maternal infection often unsuspected. The burden of protecting the eyesight of children lies heavily upon the physician. Compulsory laws should be enacted to insure the prophylactic treatment of the eyes of all newborn infants, with a heavy penalty for failure to comply. Our author has dwelt upon this subject extensively in the chapter on prophylaxis. Dr. Norris advocates obligatory health certificates for all males before marriage, as well as the necessity of classing gonorrhea as a notifiable disease.

Under treatment, the author has exhausted the subject in all of its phases from examination of the patient when first seen through the acute and chronic stages on to the involvement of the uterus, tubes, ovaries, inflammatory pelvic diseases, remote complications. Of gonorrheal infection in pregnancy, labor and the puerperium; gonorrhea in the extremes of life, including that in children and the aged. One is amazed in the reading of this work to find such an extensive array of complications arising from gonorrhea; cystitis, adenitis, prostitis, stomatitis, rhinitis, septicemia; gonorrhea of the osseous and circulatory systems, skin lesions, of the lungs, pleura, kidneys and nervous systems, parotiditis, otitis, myositis, etc.

The work is encyclopedic, and therefore impossible of complete review. Suffice it that after a careful reading the reviewer unhesitatingly declares that it should be on the table of all physicians, surgeons, and specialists.

Genitourinary Diagnosis and Therapy, for Urologists and General Practitioners. By Ernst Portner. Translated and Edited by Bransford Lewis, M.D., B.Sc., Professor of Genitourinary Surgery, Medical Department of St. Louis University, St. Louis, etc. With forty three Illustrations. St. Louis, Mo.: C. V. Mosby Company.

The aim of the author and translator of this book have been accomplished, in that they have given us in concise form a practical work on Genitourinary Diagnosis and Therapy. There are fifteen chapters with an appendix. These include a chapter on catheterization of the male, diseases of the urethra and penis, covering not only gonorrhea, but most of its complications, immediate and remote as well as diseases of the penis. Following we have a chapter on diseases of the testis and epididymis, one on diseases of the prostate, another on the seminal vesicles, on the urinary bladder, the kidneys, ureters, disturbances of the genital function in the male; diseases of the urinary organs in the female as well as children. And finally an interesting chapter, new, we believe, in works an genitourinary diseases; serological diagnosis and specific treatment of gonococcic infection

Blood-Pressure, from the Clinical Standpoint. By FRANCIS ASHLEY FAUGHT, M.D., of the Medico-Chirurgical College, Philadelphia. Octavo of 281 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Price $3.00 net.

We have here a work of some 275 pages devoted to blood pressure, an aid to diagnosis, prognosis and treatment, which has developed within a decade equalled by but few methods of precision. When we compare the sphygmomanometer of today with the method of estimating blood pressure only a few years ago by the finger, we wonder that the apparatus was not devised before, and yet there are still physicians who scoff at the sphygmomanometer, believing that the accuracy of the old method equally good, for to them its meaning is more clear than are the tracings. The author has covered blood pressure and its significance, thus giving a helpful reference.

A Practical Treatment on the Causes, Symptoms and Treatment of Sexual Impotence, and other Sexual Disorders in Men and Women. By WILLIAM J. ROBINSON, M.D., Critic and Guide Company, New York, 1913.

Dr. Robinson has written much and entertainingly on sex matters. In the volume before us we have much for thought and study, for since the days of Father Adam, since the fiat went forth to multiply and replenish the earth, there has gone hand in hand joy and sorrow, light and shadow, dense somber shadows which have weighed mankind down. And how much of light and shadow, of joy and sorrow, is to be traced to impotence will not appear in government statistics.

We cannot discuss Dr. Robinson's work to any extent because of want of space, but much of the book needs to be, should be, known. Some points of view applauded, others discussed. A commendable feature of this work is the case reports. As the author states in his preface, these should illustrate the different phases of sexual disorders, giving as they do symptomatology with history and the individual treatment. The first part of the book is devoted to masturbation, a potent cause, according to the author, of impotence. We have the definition, causes, results, prophylaxis and treatment. In chapter seven Dr. Robinson makes the astonishing statement that masturbation alone, without syphilis, may in certain individuals be the cause of locomotor ataxia. We do not call to mind having read this statement elsewhere. If it is borne out by other observers a more searching history of cases presenting the symptoms of tabes will have to be gone into, for we believe it is usual to place such patients upon antisyphilitic treatment even though a Wassermann prove negative.

We think that all readers of Dr. Robinson's book will be especially interested in his treatment of sterility and sexual neurasthenia, and we believe the work worthy of wide circulation among physicians.

PAMPHLETS AND REPRINTS

SANITATION OF FLOOD-STRICKEN TOWNS AND CITIES. With special references to conditions observed in river towns and cities of Kentucky. By L. L. LUMSDEN, Surgeon United States Public Health Service. Government Printing Office, Washington, 1913.

PARATYPHOID FEVER. By L. L. LUMSDEN. Government Printing Office, Washington, 1913.

EPIDEMIC CEREBROSPINAL MENINGITIS. By R. H. VON EZDORF, Surgeon United States Public Health Service. Government Printing Office, Washington, D. C.

LIST OF STATE AND INSULAR HEALTH AUTHORITIES OF THE UNITED STATES. Government Printing Office, 1913.

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ORIGINAL ARTICLES

TUBERCULOSIS OF THE LARYNX

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Thanks to the recent active crusade against tuberculosis, the laryngeal form of this disease is not nearly so fatal as it was a decade or so ago. At that time the mortality from this affection was over 50 per cent. Now it is 28 per cent. This improvement has been brought about mainly through the early identification of the disease. In no complaint is prophylaxis of more significance than in this one. It is often possible to perceive in the larynx a pretubercular state, in which tubercular changes are apparent before they are detected in the lungs. This is the time to act, to prevent the dissemination of the disease. Not long ago I saw a man with this condition. I advised him to go to a sanitarium for tuberculosis. He was refused admission on the ground that no evidences of pulmonary tuberculosis were present. I lost track of him for eight months, then he came to me with all the symptoms of pulmonary phthisis. Again he asked to be admitted to the sanitarium. This time he was rejected because the disease had gone beyond the incipient stage.

Laryngeal tuberculosis occurs oftener than is suspected. Competent clinicians can detect symptoms of it in the majority of tuberculous subjects. Autopsies show that the larynx is diseased in 72 per cent. of those who succumb to pulmonary phthisis. An interesting postmortem finding is that about 70 per cent. of the bodies that are brought to the autopsy table in large cities show evidences of healed tubercular lesions in the lungs. From the fact that most of these people have recovered from the disease, it is apparent that tuberculosis is not as deadly as it has been thought to be. Up to the twentieth year, at least 90 per cent. of mankind are infected, but not necessarily diseased with tuberculosis. Unfortunately, laryngeal tuberculosis does not offer the same chance of recovery that a tubercular lesion elsewhere does, but each year witnesses some progress in this direction.

The disease under consideration is mostly found in persons between the ages of 20 and 40. This is the period of life in which the expenditure of energy is greatest and the conditions for tubercular invasion are most favorable. The disease is very rare among children. This can be explained on the ground that owing to the activity of their glandular system, the infection is diverted to the glands of the neck. Formerly children with swollen cervical glands were said to be scrofulous, which is but another term for the tubercular diathesis in the infant.

Tuberculosis attacks the larynx of males oftener than females, in the ratio of three to two. This is partly because men, by nature of their vocation, are more frequently exposed to the inclemencies of the weather, which beget catarrhal complaints, the forerunners of throat troubles. Then again men are oftener compelled to use their voice under disadvantages. Men, however, have a better chance of recovering than do women, pregnancy and other sexual changes being responsible for the increased mortality among women. A female who suffers from laryngeal tuberculosis, or even one who is suspected of having the disease, should be warned against becoming pregnant, at the risk of her life. If gestation should occur, it must be intercepted, otherwise both mother and child are likely to perish. A fortunate provision of Nature is that tuberculous women seldom conceive, and when they do, they generally miscarry. Not one authentic case has been observed in which a woman with tuberculosis of the larynx has survived longer than a year after the birth of her child. A pregnant woman, in order to sustain herself and her fast-developing fetus, requires much more nourishment than is customarily taken, perhaps an irritable stomach retards the assimilation of even the normal amount of food. In that case the reserve energy that is stored away in the form of fat is drawn upon and the health declines. Another danger is that the expanding abdomen will crowd the lungs and impede respiration, thus placing a greater strain upon the larynx and other respiratory organs, which are already hard pressed.

Nearly all observers are agreed that laryngeal tuberculosis is always transmitted from the lungs, the channel of infection being the lymph ducts. This view is strengthened by the knowledge that the initial laryngeal lesion nearly always occurs upon the same side as that of the pulmonary deposit. Cases are occasionally cited in which the larynx alone is diseased, the lungs showing no physical signs of tuberculosis. It was formerly thought that in these cases the infection came from without, but this has been disproved. It is explained in two ways. Either the laryngeal lesion is the recrudescence of an old tubercular focus that was deposited at some previous time, when the lungs were diseased and were the source of infection, or, that the lesion in the lungs is deeply seated and not apparent to physical examination. Absence of bacilli in the sputum and even absence of sputum are not conclusive proofs of the nonexistence of pulmonary tuberculosis, since both sputum and bacilli are not found until the disease is well under way, and after the lung tissue has broken down and the liquefied mass has been coughed up.

Tubercle bacilli are well nigh indestructible. Virulent germs have been found encapsulated in bronchial lymph nodes twenty years after the lungs had recovered from the infection. There is reason to believe that this same phenomenon can occur in the larynx, the recurrence being due to some general dyscrasia, associated with a laryngeal disorder.

It is hardly possible for tubercular germs to reach the larynx through surface infection, from the sputum or through respiration, when we take into consideration the nature and the habits of the infecting organism. Tubercle bacilli are turgid, slow growing germs, that require for their propagation a certain degree of warmth, a comparative absence of air and a quiet resting place. These requirements are not to be found in the larynx, the mucous membrane of which is so exquisitely sensitive that a foreign body of any kind excites a flow of mucus and a fit of coughing that causes them to be expelled. If primary infection of the larynx were possible, the lesion would probably occur in the pyriform fossa, just above the larynx. These fossae are the catch basins of the throat. They receive the secretions that drain from the nose and throat and divert them into the esophagus. Having a rich lymphatic supply, they are ideal places for surface infection. As a matter of fact they are rarely the seat of tuberculous deposits. Another point against surface infection is that a tubercular deposit in the larynx starts in the deeper parts of the larynx and gradually makes its way to the surface.

The pathology of tuberculosis of the larynx is precisely like that of a similar lesion in any other part of the body. The unit of all tubercular foci is the giant cell or miliary tubercle. A laryngeal focus consists of a mass of these cells in the substructure of the larynx. It is accompanied by certain destructive changes which are peculiar to this disease. As the destruction proceeds, the infiltrated areas become larger, and finally it softens and breaks down, the debris seeking an exit at the point of least resistance.

Occasionally we see a larynx in which the tubercular changes can be followed from the first stage to the last. The first change that is noticeable is a hyperemic patch or swelling of the mucous membrane, either upon the vocal cords or in the postlaryngeal wall. After a time tiny yellow spots can be discerned beneath the swollen area. These are the miliary tubercles which presently reach the surface and become tiny disseminated ulcers. These rapidly coalesce into one large shallow ulcer that looks like a slice of raw bacon with irregular worm eaten edges. Autoinfection of the rest of the larynx gradually takes place, and ultimately the entire larynx becomes infiltrated and diseased. The rapidity with which a tubercular deposit reaches the ulcerative stage depends upon the site of the lesion and upon the activity of the disease process. A lesion upon one of the vocal cords soon terminates in an ulcer. This is on account of the scarcity of epithelium, and because of the undue amount of attrition to which this part of the vocal cord is subjected. On the other hand an infiltrated area in the postlaryngeal wall may last for years before it breaks down. This is because of the limited motion and the thickness of the mucosa at this point. A lesion at this site is apt to cause early discomfort in swallowing, owing to the proximity of the esophagus. Generally, when the disease in the larynx has reached the stage of ulceration, that in the lungs has advanced to cavitation.

The exudate from a tuberculous ulcer is at first thin and watery and is laden with tubercle bacilli. Soon, however, pus cocci invade the field, and by their more rapid propagation soon displace the bacilli. The exudate then becomes of a thick ropy consistency and contains comparatively few tubercular germs. It is difficult to find tubercle bacilli in the discharge of other than a fresh ulcer, excepting near its base. The yellow exudate that frequently covers an ulcer of one of the cords is apt to mislead the inexperienced eye into the belief that the cord is normal in color.

In looking at a chronic tubercular ulcer of the larynx we are struck with the profuseness of the pale and edematous granulations. It is the reparative process which follows all tubercular changes. By means of it Nature attempts to stem the tide of infection and to seal the breach made by the disease. Tubercular granulations, however, are so unlike healthy ones, and so devoid of nutrition, that they usually defeat their very purpose, and retard rather than assist repair. In certain instances the granulations can be stimulated to healthy action, and then healing takes place, a layer of connective tissue replacing the granulations. Sometimes a larynx is seen in which destruction is going on in one place and repair in another. In this way repair equals waste and the disease drags on for an indefinite period before it assumes a serious aspect. Occasionally the scar tissue that replaces an ulcer contracts to such an extent as to make breathing difficult.

Individuals who use the voice as a source of livelihood and those who suffer from intercurrent attacks of simple laryngitis, whenever the weather is unfavorable or when they have a cold in the head, are the ones who are predisposed to laryngeal tuberculosis. A chain will break at its weakest link. In the same way a supersensitive larynx offers the least resistance to tuberculosis. Unquestionably a nasal disorder is the underlying factor in many of these cases, as it is the predisposing cause of nearly all throat complaints.

The earliest symptoms of laryngeal tuberculosis relate to the voice. As a rule the disease has such an insidious onset that its presence is not noticed until the tubercular infiltration renders the apposition of the cords mechanically impossible. The first complaint is a slight hoarseness and a sense of discomfort in the larynx. These symptoms are soon supplemented by a dry hacking cough. Frequently the symptoms are precisely like those of a simple laryngitis, and it is not until their stubbornness arouses suspicion, that closer investigation reveals the true condition. It is then that other symptoms of tuberculosis are often brought to light, such as a rapid pulse, accelerated respiration, subnormal morning temperature or slight afternoon fever, or declining weight. A persisting hoarseness that is attended with a dry cough which is often violent and paroxysmal in character should always be investigated. The symptoms of laryngeal tuberculosis are worse at night, owing to the decline of the physical powers. Patients with laryngeal tuberculosis exhibit far more languor and debility than those with lung disease alone. They have a peculiar worried and haggard look and they talk with an effort. Their most troublesome complaints are the excessive dryness and irritability of the throat and the dry cough. These symptoms are particularly annoying to women. The excessive dryness of the throat is akin to the dryness of the skin and hair from which nearly all tuberculous subjects suffer. It is due partly to defective secretion and partly to the abstraction of moisture by the febrile process.

Hoarseness occurring in a person suffering from pulmonary tuberculosis is certainly suggestive of laryngeal involvement. It, however, can come from another source, such as a collection of dry sputum, or by a crust of mucus in the larynx, or it may be due to impairment of one of the recurrent nerves, either from pleuritic adhesions or from the pressure of enlarged bronchial glands.

Inspection of the larynx in the early stage of laryngeal tuberculosis reveals at the first glance but little of a diagnostic nature. There may be nothing discernible excepting a patch of hyperemic mucus membrane, or perhaps a faint swelling. Closer inspection shows that the movement of the vocal cord on the side of the lesion is not as free as it should be, and that the movement of the arytenoid is restricted. Sometimes a tubercular nodule can be seen upon the free edge of the vocal cord. It resembles a singer's node. There is something about a tubercular lesion in the larynx which to the experienced eye makes it distinctive of this disease. It is the infiltration that surrounds the lesion. In many instances doubt about the nature of a suspected lesion is dispelled by the observance of general symptoms of tubercular toxemia, such as failing weight, night sweats and so on. When the disease in the larynx has become well established, it can scarcely be mistaken for any other disease. This in spite of the fact that no other disease of the larynx presents so many variations from what may be considered the typical form, as tuberculosis of the larynx. When the disease has reached this stage the membrane assumes an ashy pallor which is in keeping with the general anemic appearance of the individual, and signifies the destruction of the red blood corpuscles. The landmarks of the larynx are obscured by edematous swellings. The normal prominences of the arytenoids are effaced by pyriform infiltrations and the epiglottis is swollen and turban shaped. Looking beyond the upper boundary of the larynx we see the soggy interior. We notice that the cords do not meet in phonation and that an abundance of thick mucus is present. Careful examination will generally reveal an ulcer, more or less extensive, either upon one of the vocal cords or in the posterior commissure. The ulcer is usually much larger than it appears to be in the mirror. It is irregular in outline, of a dirty unhealthy color and covered with a yellow exudate. The presence of numerous pale frog spawn granulations attest that attempts at reconstruction have been made. These granulations are at times so abundant as to materially lessen the caliber of the larynx and make breathing difficult. Occasionally a larynx is seen in which the disease is confined to one side for a year or more before the entire organ becomes infiltrated. As long as the tubercular disease is confined to the interior of the larynx its progress is slow and comparatively little suffering is experienced, but as soon as the disease extends to the epiglottis or to other extralaryngeal parts, its course is rapid. In general terms the nearer a tuberculous lesion gets to the mouth the more rapidly fatal it becomes. The moment dysphagia is added to the patient's suffering the prognosis becomes bad.

Incipient tuberculosis of the larynx is more frequently encountered than we think, but if rightly treated, the chances of recovery are good. The fact must be recognized that the laryngeal lesion is generally but a phase of a general constitutional dyscrasia which is best combated by fresh air, hygienic surroundings and good nourishment. Rich oxygenated blood is the most efficient destroyer of tubercle bacilli. From the knowledge that most throat disorders have their beginning in the nose, it is the part of wisdom to establish normal nasal respiration before doing anything else. The removal of diseased tonsils in these cases is also helpful if they appear to irritate the throat. Comparatively few physicians when they send tuberculous patients to the mountains, examine their nostrils to see if they can obtain the benefit of the air by natural breathing.

It is the practice of many physicians, when a patient complains of symptoms of commencing laryngeal tuberculosis, to prescribe a sedative cough mixture, instead of probing into the cause of the symptoms. This indiscriminate giving of cough remedies has done much irreparable harm to this class of sufferers. Frequently the cough is lessened, but it is at the expense of the health and the appetite. When the diagnosis is finally made, much valuable time has elapsed and the disease has made serious inroads. Coughs are of two kinds, bronchial and throat. The former is usually a salutary measure and should be encouraged, since its purpose is the removal of secretion from the chest. The latter is generally caused by a supersensitive throat or by a foreign body, and must be treated differently. The amount of energy expended in coughing is often very great. It is estimated that a person who coughs or clears the throat once every 15 minutes for 10 hours, uses up power equivalent to 250 heat units. This equals the nourishment contained in three eggs and one pint of milk. In normal respiration the air is expelled from the lungs at the rate of 4 feet per second, while in violent coughing it may attain a velocity of 300 feet. This waste of energy is highly injurious to tuberculous subjects. The assimilative functions of these people are already working under great disadvantages and the inability of the digestive organs to assimilate the additional food that is required to offset the loss of vitality induced by the coughing, causes emaciation.

Rest to the voice is one of the best ways of overcoming a laryngeal disorder. When this cannot be secured, a compromising measure is to advise speaking in a subdued voice. If the occupation is prejudicial to the throat, it should be changed. There is no use trying to cure a tuberculous larynx if the voice is unduly used, or if it is exposed to dust, draughts, or to a cold and raw atmosphere. Fatigue, worry, and crowded, dark, or ill ventilated places should be avoided. The patient should live in a temperature as nearly uniform as possible and should refrain from doing anything which might cause his temperature to rise. An increased temperature favors the development of the turbercle bacilli, hence the frequency of tuberculosis in the cow, whose normal temperature is 102° F.

Perhaps the greatest restoratives in tuberculosis are rest and sleep, particularly in the open air. Coughs that occur when a person goes from a warm room into a cold, usually disappear by sleeping in the open. Foul air, and not cold air is accountable for most colds and coughs. Esquimaux are seldom sick in their native land. It is not until they live in houses that their health departs. Peary and his men were free from colds and coughs as long as they lived out of doors, but as soon as they slept in houses their ailments returned.

Tuberculosis is seldom contracted in summer, for this is the season of the year that people live a more natural life and get the benefit of the fresh air and sunshine. Tuberculosis has been termed the bedroom disease. The very air that is so wholesome in summer, in winter, in a closed room, becomes contaminated and is converted into our worst enemy. It seems that the luxuries that provide us with comfort, in winter deprive us of our vigor and disease resisting power. Infinitely more diseases are contracted in crowded cars and stuffy theaters than by exposure to cold. Cold air is more beneficial than warm, even though the latter be just as pure. It is well known that invalids in the Adirondacks enjoy better health in winter than in summer. The cold air energizes the lungs in the same way that a cool draught stimulates a flame.

Fewer people would suffer from throat disorders and from tuberculosis if they would expose their bodies more freely to the air. It is a common observation that whenever feminine fashion calls for an exposed neck and chest women have comparatively little trouble with their throat or bronchial tubes. Most of our celebrated singers have learned that to harden their vocal organs to atmospheric changes insures them against vocal disorders. The cutaneous respiration of a healthy person is 5 per cent. that of the lungs, and the percentage is much higher in a person whose lungs are not functionating properly. It is imperative, therefore, that all sufferers from tuberculosis should derive as much benefit as possible from cutaneous respiration. Upon the mountains of Germany and of Switzerland, certain sanatoria for tuberculosis have been established, where the inmates are obliged to live in a state of comparative nudity the year round. I have been told that the results from this treatment are the best yet attained. In the height of winter children can be seen playing around on snow-shoes, with only a bathing suit on. A few months before these very children were wasting away with tuberculosis.

Every person with tuberculosis and every tubercular suspect should have the throat examined periodically in order to guard against the larynx becoming diseased. In most sanatoria for tuberculosis the larynx is occasionally inspected, but oftentimes the work is done in a perfunctory way and very little good is accomplished by it.

The use of the time honored cotton swab, with which to apply an astringent to the larynx should be dispensed with in incipient tuberculosis of the larynx, where there is no abrasion. We should refrain from inflicting additional traumatism and causing greater suffering by useless local meddling. This matter of making applications to the larynx whenever that organ is diseased, is unscientific and unwarranted. Fortunately the swab seldom reaches the interior of the larynx. When it does, it strangles the patient and otherwise causes needless distress. A fine down spray atomizer and a simple alkaline wash, such as Dobell's solution, is sufficient to cleanse the larynx and produce comfort. Finely powdered iodoform suspended in olive oil or albolene can be sprayed into the larynx to relieve the cough of an irritable larynx, or it can be applied by means of a piston syringe with a long bent canula. Inhalations of creasote or guaiacol in oil serve a similar purpose. Night coughs may be relieved by tying a cold damp cloth around the neck, or by sipping warm milk, preferably with the albumen of an egg. Sedatives are to be withheld as long as possible.

In the ulcerated stage of laryngeal tuberculosis, laryngeal applications are often useful. From time to time certain drugs have been advocated as having special advantages in the treatment of tuberculosis of the larynx. Lactic acid, orthoform, formalin and ichthyol, are the drugs principally recommended. In my belief not one of them is generally applicable excepting ichthyol, which stimulates the ulcer to healing. Recently much has been written about the advantages of injecting alcohol into the sensory nerve of the larynx, the superior laryngeal. The results have been disappointing. Much was hoped from tuberculin, but thus far it has been found wanting. Unquestionably the serum treatment of tuberculosis will eventually be perfected, but until it is, we will be compelled to use older and tried methods. A distinct advance in the treatment of tubercular ulcers has been made by the introduction of fulgeration. By this method the lesion is seared, as with a hot iron, with the sparks from the high frequency current. The sparks are caused to jump from an insulated applicator to the raw surface, the other electrode being fastened to the neck.

Most physicians display too much timidity in dealing with an open lesion in the larynx. They are apt to resort to topical applications and sedatives when more radical measures are demanded. If the fundamental principles of surgery are observed there is no fear of infection, hemorrhage or septic pneumonia. A laryngeal ulcer should be treated in precisely the same way that a tubercular ulcer elsewhere is treated. Our purpose is to convert a sluggish ulcer into one with a healthy granulating surface. To do this we must provide cleanliness, free drainage aand stimulation. Surgery of the larynx should only be attempted during the quiescent period of the disease. Of course when respiration is embarrassed owing to the lesion, immediate relief is called for. The instrument best adapted for cleansing and stimulating a laryngeal ulcer is a sharp curette, carefully and thoroughly applied. A week or two afterward the curette can again be used if some unhealthy granulations remain. An edematous swelling is an occasional occurrence in tuberculosis of the larynx. Multiple linear scarification generally relieve this condition.

Perhaps the greatest distress that these patients have comes from the swollen epiglottis, which makes deglutition painful and difficult. It is essential that an excess of nourishment be taken and this can be done only under the most favorable conditions. If the ingestion of food causes pain very little is eaten and the disease makes great headway. For a long time I hesitated to remove a swollen epiglottis, fearing hemorrhage or inspiration pneumonia. Experience has taught me that the epiglottis can be removed with impunity, and that it is not essential to the well being of the larynx. My procedure is to grasp the epiglottis with a tonsil forceps and to make traction, then by means of a tonsil snare the entire ledge of the epiglottis is removed. The pain is very slight. The relief is very great.

There are times when active treatment of the larynx or its adnexia is contraindicated. For instance when the pulmonary disease is active or when the laryngeal disease has reached a stage where a return to health or comfort is beyond hope. In such cases treatment should be entirely symptomatic and applied as occasion demands.

Sea voyages are to be avoided on account of the liability of edema of the larynx, from the saline vapor. A person with a laryngeal disease should always be within reach of a physician conversant with the larynx, in case of emergency.

The question of nourishment is an important one in any form of tuberculosis, particularly in the laryngeal form, on account of the difficulty in swallowing. Early in the disease the amount of food taken may be moderate, just enough to keep the body weight from declining. In the advanced stage the food should be abundant in quantity and rich in carbohydrates, to overcome the loss induced by the disease. Thick demulcents can be taken with less discomfort than thin fluids. A good way to administer food when swallowing is painful is with a catheter passed through the nose, and past the epiglottis. Spraying the throat with a ½ per cent. solution of cocaine frequently enables food to be taken when it is refused without it. Rectal feeding is often beneficial when the throat and the stomach need rest.

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AUTOTHERAPY IN PURULENT INFECTIONS
AND
THE TECHNIC OF ITS APPLICATION

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A Committee of the Council of Pharmacy has issued a series of papers on vaccinetherapy in the *Journal of the American Medical Association*, which is concluded in the issue of June 28, 1913. The summary is as follows:

1. Vaccinetherapy is a highly specialized field of medicine whose successful pursuit calls for a particular training in bacteriology, immunology and clinical medicine.
2. The therapeutic value of vaccinetherapy has been exaggerated.
3. The promiscuous use of stock bacterial vaccines is an irrational procedure.
4. Ready mixed commercial vaccines should be abolished.
5. In suitable cases for bacterial therapy, autogenous vaccines are with few exceptions superior.
6. Autogenous vaccines should be prepared by those in touch with the patient and not through the agency of remote laboratories.

The writer believes this wise decision of the Council of Pharmacy should be supplemented by other reasons than those given. Reaction to a drug is the opposite for a true cure for drug action. A high resistance to a drug may be built up by repeated inoculations of the drug or by repeated drug action. For example, a person addicted to the use of morphine tends to build up resistance to morphine to such a degree that at times he is able to take with little or no manifest drug action an amount of morphine sufficient to kill several normal individuals. In building up this resistance, the patient does not establish a resistance to strychnine or arsenic; on the contrary, he builds up directly antagonistic resistance solely to or against morphine. When a sublethal dose of any poison is injected into comparatively healthy tissues, these tend to develop resistance that is directly antagonistic to the toxic effect, or the *anti* to the action of the poison in question. Let us suppose a patient is suffering with a localized infectious disease. Here he suffers from the toxic substances that have developed in his body through action of the infecting agent upon his body tissues. In other words, he suffers from his own poisons elaborated by his body tissues. He is now injected with turtle, guineapig, or test tube toxin, or a toxin from some other patient or source. The healthy tissues will then tend to develop resistance to the turtle, guineapig or test tube, etc., toxin, respectively, as they tend to develop resistance to any toxic substance placed in them. This, however, is not the toxin from which the patient suffers, and for this reason the resistance to these toxins may not be the curative resistance to the disease. But when the patient is autoinoculated with his own unmodified human toxin complex, he will tend to develop resistance to these, and this is the specific resistance to the disease from which he suffers. The resistance to no other toxin or set of toxins is the exact resistance to the disease. The autogenous toxin complex is the ideal therapeutic agent, for with this we will tend to combat the toxins from all of the microorganisms from which the patient suffers. There is no certainty that the toxins from one patient will cure any other patient, and there is less certainty that a turtle or a test tube toxin will act therapeutically. In selecting the appropriate curative toxic agent, the individuality of the patient must be taken into consideration. If a foreign toxin does not act therapeutically, it tends to be harmful, and this at the time when the patient needs all the strength and vitality possible.

There is no toxin that individualizes the patient as does the autogenous toxin or autotherapeutic remedy. In advanced or severe infectious diseases the infection is usually mixed. Various other microorganisms besides the principal causative agent are present as complicating factors. To be most curative, the reaction must be against all the toxins that are in the patient's body; that is, the toxins from the principal causative microorganism and its set of toxic tissue substances as well as those of the complicating bacteria and their separate set of toxic tissue substances must be combated. Complicating microorganisms often present are the influenza bacillus, pyocyaneus, staphylococcus, streptococcus, colon bacillus, and one or more of many other microorganisms. It must be admitted that it would be difficult to match the symptoms produced by all these microorganisms with any of the vaccines now in use, for the reason that we cannot always identify the varieties of bacteria present. Furthermore, we cannot exactly duplicate the tissue toxic substances by employing stock polyvalent conglomerate vaccines. As far as the autotherapeutic remedies are concerned, it makes little difference what they are; all the exact toxins from both the causative and complicating microorganisms and all the corresponding tissue toxin substances of each are in the filtrate ready for use at the bedside.

When spontaneous cure of an infectious disease occurs, we believe it is because part or all of the unmodified human toxins from the focus of infection enters the blood stream; the reaction to these toxins is the specific reaction to the disease. Autotherapy, or the physician's method of assisting the tissues in curing disease, is founded on nature's method of cure; but it is quicker in action and more antibodies are formed.

For the sake of further discussion, let us assume the presence of an infectious disease in which there are in addition four complicating microorganisms: not an unusual number. The toxins from these five microorganisms and the toxic tissue substances produced by them make a set of at least ten toxins from which the patient suffers; collectively, these are the exact remedies, and are spoken of as the *toxin complex*. Now, the vaccine prepared according to Wright contains only one of these toxins, and it is of altered or lowered therapeutic value; furthermore, it may not be the right one, or we may not be able to grow it outside the body tissues. The superiority of the autotherapeutic remedy over the vaccine prepared according to the old and faulty formula of Wright is at once apparent. No laboratory process which the vaccines undergo in their preparation adds to their therapeutic value; every step in the laboratory processes alters them. If a vaccine prepared in a laboratory cures, the cure is due not to laboratory manipulation, but in spite of it.

The autogenous toxin complex is not very toxic. Seldom will the temperature rise above 99° F. Autotherapy is of much wider application than vaccinetherapy. The results in the writer's hands are incomparable with any other therapeutic procedure. As a prophylactic to disease, the unmodified human toxins are ideal.

In contradistinction to the condemnation by the Council of Pharmacy of the use of vaccinetherapy, the writer would emphasize that autotherapy is not a "specialized field of medicine." Its pursuit does not call for a "particular training in bacteriology, immunology and clinical medicine." By the use of autotherapy the practitioner again comes into his own; he no longer has to send his patients to "highly specialized" pathologists or to sanatoriums where gilt edged fees are often deflected. By its use the physician may more often treat his patients suffering with an infection and at the same time be quite sure the patient is getting the remedy fitted or adapted to his individual needs and no other. As far as a cure is concerned, a diagnosis is often unnecessary.

Autotherapy is being successfully employed everywhere. It is within the power of every physician to test it for himself. Curing infections by autotherapy is not complex, nor is it simple. It is the obvious medication of the dog which licks and cures its wounds.

Case 1—March 1, 1913. Patient female, unmarried, Hebrew, age 55 years, came to the writer suffering with a purulent infection of the whole arm, from the ends of the fingers to the elbow. The arm was enormously swollen with much induration. On removing the bandage the pus spurted out as if under pressure. The history of the case is that about thirteen weeks previous the patient had received a scratch on the finger and had been under treatment by several physicians since.

The infecting microorganism was the staphylococcus pyogenes aureus, so diagnosed by Dr. Henry T. Brooks. Thirteen rubber and gauze drains were removed and not replaced. The wound was then dressed with sterile gauze and water. Five drops of the pus were placed in an ounce of water, and she was given one half of this to drink, and told to take the other half in six hours. In five days' time the wound was clean. In two days more the patient was discharged as cured. At the end of ten days from the time the treatment was begun, she returned and complained of pain in the hand. An examination revealed a pus pocket over the palmar surface. This was opened and an ounce of pus removed. She was then given two drops of this pus by mouth in the same manner as previously. At the end of two weeks from the time treatment was begun the patient was well and has had no return since. There was ankylosis of the wrist. The only treatment this patient had besides the pus was a dose of calomel and a strong nourishing diet.

Case 2—A German woman, age 55 years, who never had a doctor before in her life came down with a large furuncle on the neck just below the thyroid cartilage. There were numerous other small openings immediately surrounding the induration. It was about four inches in diameter, raised in the center about an inch and a quarter, the parts were dark red, glistening, and exquisitely tender. After lancing it, four drops of the crude pus was placed in an ounce of water well shaken and given to her in three divided doses one hour apart. On the evening of the fourth day following, the necrotic area became detached, leaving a hole about an inch in diameter. The parts healed rapidly. In four more days I ceased my visits, as the pus had disappeared, leaving healthy granulations covering the site.

Case 3—September 22nd, 1910, B. S., age about 24 years, came under my care with a request that a trial be made of this new treatment, as his case appeared to be hopeless. The patient was admitted to the hospital about two months previous suffering a compound fracture of the arm, upper third; weight 145 pounds. His wound was infected and had been exuding pus ever since he was admitted. On September 22nd he weighed but 99 pounds, was cachectic and emaciated; had no appetite and with difficulty could be made to swallow the juice of a single orange a day. He wanted to die and would not leave his bed. A close examination of the arm revealed a piece of necrotic bone three quarters of an inch long; this was removed and the patient was started on a course of the natural combined toxins or crude pus by the mouth one drop daily on a little sugar for three days. The pus cleared up quickly in four or five days, but returned again in seven days. After giving him another dose it cleared up again in about the same time, but again returned in a few days. On October 13th the patient had gained 6 pounds, complained of not getting enough to eat, was cheerful, temperature normal since the treatment began, and had been with a slight fluctuation to 99° F. He was put on a double house diet and an extra quart of buttermilk daily. The patient remained in the hospital for six weeks following, when he was discharged cured.

Case 4—June 25, 1911, Pascheal Romona was admitted to the Volunteer Hospital under the services of the writer with a simple fracture of both bones of the left leg, upper third. A fracture box and cooling lotions were applied, but at the end of three days there was noticed a slight discoloration of the toes. This continued until there was marked gangrene of the foot. In twenty four hours there was a faint discoloration of the whole leg up to the site of the fracture. Amputation was refused. On the following day he became delirious, temperature 105° F. There were maggots in the foot. The line of demarkation was sharp and well defined, but on the under side of the leg there was a black zone extending to the crest of the ilium. As the last resort amputation was made in the middle third of the thigh; the skin flaps were not sutured, the end of the stump being packed with gauze. The incision passed through about five inches of what appeared to be gangrenous tissue. This was hard and stiff like the back of a book and was black and about three quarters of an inch thick; the fat globules when cut were white, stiff, and shone like glistening pearls set in an ebony background; the prognosis was grave.

The writer had no idea of saving this patient's life. A cubic centimeter of the necrotic tissue from the foot was shaken up well in about four ounces of water, he was given a teaspoonful of this every hour for six hours; his temperature dropped immediately after the operation. The patient went on to an uneventful recovery and the blackened skin flaps did not necrose, but returned to their original healthy state, and the wound apparently healed with no slough.

Case 5—November 15, 1912. Patient female, Hebrew, could not speak English, age 19 years, scratched the middle finger of the right hand with a pin. The wound became infected. She was treated at several city dispensaries and later by three practising physicians. The finger grew continually worse, until she applied to the writer for treatment on January 10, 1913.

At this time there was an opening from the first articulation on the palmar surface to the middle of the hand. The pus had burrowed into the hand in several directions. The end of the second phalange was necrosed, and protruded. The end of the third phalange appeared to be necrosed. The finger was enormously swollen, and was purple. It was limp and would hang in any direction it was placed. The pus was thick and free. Two drains an inch and a half long were removed and placed in an ounce bottle of tap water. This was thoroughly shaken. One quarter of this was heated until bubbles began to appear. This was then replaced in the bottle with the unheated part, and again shaken thoroughly. The whole was filtered and twenty minims injected hypodermically. Half of the mixture was heated so as to destroy some of the microorganisms, in order that their toxins could go in solution by autolysis. A specimen was sent to Dr. H. T. Brooks. Diagnosis—Staphylococcus pyogenes aureus. January 11th macroscopically there was no pus present. The discharge was serous, thin and streaked with blood. This is always a sign that the reaction is continuing; so I did not give more as long as this continued. She slept well on the night of the 10th, when the drain was removed. The cutaneous reaction following the injection was the size of the palm of the hand, pink, slightly puffed and tender. The wound was then dressed on alternate days. In ten days the wound had healed.

Case 6—H. L., age 34 years, admitted to the hospital February 26th, 1913, suffering with a compound fracture of the left humerus upper third and a fracture of the surgical neck of the left femur. February 27th, the patient's arm was operated on. The wound being cleansed, drained and put up in plaster cast. The wound was infected. March 8th, wound opened and cleansed. March 26th, Bier's hyperemic treatment begun, applied four hours out of twelve every day. This was continued until July 10th, when the patient was operated upon again and a silver plate used to hold the bones in apposition. September 15th, plate removed. September 22nd, the patient came under the writer's medical supervision with a special request to test the efficacy of his new treatment of giving autogenous toxins. On this date the patient was cachectic, lips inclined to be purple, tongue furred and dry; the wound had been discharging pus for seven months continually. He was melancholy, wanted to die, would not eat, was emaciated, weight 128 pounds, would not leave his bed; altogether he was in a bad condition. There was a history of members of his father's family having died of pulmonary tuberculosis. His eyes were sunken and he was considered a hopeless case; one that would not live more than a few days. The patient had been running the usual septic temperature, and on September 22nd it was 102.5° F. He was given a drop of pus from his wound on a lump of sugar. This was repeated September 23rd and 24th. On September 25th, there was markedly less discharge. September 26th, the wound appeared to be free from pus, there being a slight discharge of a thin serous nature, mixed with some blood. Temperature normal. On September 27th, 28th and 29th there was no discharge. October 1st, there was a slight discharge, when he was given further pus taken fresh from the wound. October 2nd, slight discharge. October 3rd, slight discharge, the patient complaining of not getting enough to eat; weight 134 pounds. October 4th and 5th, slight discharge. The patient of his own volition got out of bed for the first time since coming under my charge. October 6th, 7th and 8th discharge was thin and sanguinous and of slight amount. On the 9th, the wound was clean and has been since. October 12th, weight 138 pounds. He was put on house diet. On this date the patient smiled for the first time, although the nurse said he had been cheerful for several days. He had no other treatment except that his wounds had been dressed daily with sterile water and gauze. October 24th patient had gained 14 pounds, at which date he left the hospital.

Case 7—January 4, 1913. Patient, Mrs. R., age 26 years, came to the office suffering with a furuncle on the back of the neck, the size of a silver dollar. It was opened and a specimen of the discharge sent to Dr. Henry T. Brooks for examination. About four drops of the pus was placed in an ounce bottle of water and thoroughly shaken. Half of this was heated over a Bunsen burner to the boiling point. The boiled portion was then returned to the bottle with the unboiled, and again well shaken and filtered through a Berkefeld Filter and twenty minims injected into the subcutaneous tissues over the biceps muscle. The patient did not return on the day following fifth, but on the sixth the skin incision had healed over completely, leaving a small area of redness, where before was the site of the furuncle. A report from Dr. Brooks gave as the causative microorganism the staphylococcus pyogenes aureus.

Case 8—January 4, 1913. Patient Mrs. B., age 32 years, applied for treatment of a furuncle on the right thigh. The induration was about the size of the palm of the hand. It was opened and a slide containing a specimen of the discharge sent to the laboratory. Five drops of the pus were placed in an ounce of water and thoroughly shaken; half of this was heated over a Bunsen burner to the boiling point. The boiled part was then replaced in the bottle with the unboiled and the whole shaken and filtered through a Berkefeld Filter and twenty minims of the filtrate injected subcutaneously. In forty eight hours the pus had disappeared, and the necrotic area came away, while in two days more the parts had healed. The microorganism was the staphylococcus pyogenes aureus.

Case 9—Patient male, age 28 years, appeared for treatment, suffering with three rather large furuncles, following a severe sunburn; one on the shoulder over the deltoid muscle, one on the side just above the anterior superior spine of the ilium and one in the glutial region. The former was opened and a dram of pus liberated. Ten drops of this was placed in a mortar with two drams of powdered glass and thoroughly ground. This was then placed in an ounce of water and thoroughly shaken. It was then filtered through a Berkefeld Filter and twenty minims injected in the subcutaneous tissues over the biceps muscle. In forty eight hours the necrotic area of this furuncle became detached and was removed with the dressing. The second became loose on the succeeding day. The smallest one, in the glutial region, was then lanced, and about ten drops of pus liberated; another dose of the filtrate was given the same as before. In forty eight hours the pus had all disappeared from this one also. On the second day following the case was discharged cured.

Case 10—Dr. ——, of Pottstown, Pa., reports the following test made on himself. He had multiple boils in the axilla, and placed a few drops of the pus from one in his mouth. It tasted sweet and he reports took away all pain as if by magic. A dose or two more cleared up the whole condition.

Case 11—Dr. R. A. Agnew of Jewett City, Conn., reports the following case successfully treated by him.

"Patient had a discharging wound of the tibia for seven months which resisted all antiseptics. On December 18, 1912, I gave him ten drops of pus by the mouth. On the 24th the wound was clean and granulating nicely."

Case 12—Dr. P. A. Ela of East Douglas, Mass., reports the following case successfully treated by him. A young man had caught his hand in a machine. The flesh was torn and loosened from the greater part of the hand and three fingers required many sutures and the removal of several small pieces of bone. Dirt and cotton lint were imbedded in the tissues. On the second day following, having read an article by the writer in *The New York Medical Journal* of December 14, 1912, he began giving the patient the autotherapeutic treatment. He tock the discharge from the gauze and from an old grimy handkerchief that covered the wound when he came for treatment. At this time the hand looked like a puffed pin cushion, and the fingers like dark colored sausages. Medication was started on the 16th. On the 25th the swelling had nearly all disappeared; by this time there was a free discharge of thin, clear, yellowish serum, but no pus. In a few days the discharge ceased, and the wound promptly healed without further complication. On the first night before this treatment was begun, it was necessary to give him a hypodermic of morphine, but this was not necessary after the toxin complex was given. No antiseptics were applied after the first dressing. On every other day a solution of pus was given by the mouth. He had been using the Sherman stock vaccines for over a year, but had had no similar rapid improvement. The special characteristics of this treatment is the absence of pain and the quick reduction of swelling.

Case 13—Dr. E. F. Mills, 326 East 58th Street, New York City, reports the following case:—

"December 15, 1911, Gussie K., age 19 years, came to my clinic suffering with one of the most severe pus infections that I have ever seen. In the right forearm lower third, there were a number of large pustules, from which there was a thick and yellow discharge. Inflammation quickly ascended the arm, infecting the whole area. The lower arm was an edematous, boggy mass with multiple openings discharging pus. Patient anemic and poorly nourished. The treatment consisted of antiseptic cleansings and aseptic dressing, the usual method of treatment, which was instituted and continued for five days, but it did not result in improvement. I then decided to try the Duncan method of giving the autogenous toxins by the mouth and quietly laid aside one of the cotton wipes saturated with pus. When she had gone I placed this in four ounces of sterile water. The next day I gave her a two dram vial of this water and directed ten drops to be taken every three hours in an ounce of water. This was Friday. When she came in on Monday the greatest improvement had taken place. There was no discharge, the pus had dried up, the edema had disappeared, leaving the area of skin very red with a handsomely shaped arm and wrist. She came in once more the second day following for observation, when the case was discharged as cured. Amputation has been performed for much less severe conditions. I never saw a remedy act so quickly and beautifully in my life."

Case 14—Professor Wm. H. Freeman, of East New York, reports the following case:—

"Patient female, came to me with a carbuncle on the index finger of the right hand. She had been in delicate health since her first child had been born. The finger and hand were swollen to large proportions very tender and painful. The forearm was much swollen and the glands in the axilla were involved with temperature 103°F. The lymphatics were streaked up past the elbow. The parts were freely lanced and the usual medication for such conditions given, but still the infection and swelling increased for several days. I then took a drop of pus from the wound, triturated it with sugar of milk and placed it on her tongue. In six hours there was an improvement in that the pain had ceased. In twenty four hours the red line marking the lymphatics had disappeared and the wound had taken on a healthy appearance; temperature 99°F. In twenty four more hours healthy granulations were making their appearance; in sixty hours after the treatment had begun the whole septic condition disappeared and healthy granulations covered the area. She made an uneventful recovery. Since then, two months now, she reports enjoying better health than she has had since the child was born."

Case 15—Dr. Alexander Vertes, of Louisville, Kentucky, reports the following:—

"Edwin Carlin, night watchman, had carbuncles and boils almost all his life. He consulted me in December, 1911. After lancing his carbuncles on the arm, I prepared a weak dilution from his pus, which I gave him internally. The parts healed promptly, of course, but that he had no more of them since seems remarkable."

Case 16—Dr. J. Hubby Schall, of Brooklyn, N. Y., reports the following:

"I tried the autogenous virus in one case of severe furuncles. A few drops of the patient's pus were mixed with sugar of milk and given by the mouth; only one dose. This case I watched with much interest, and noted that he made better progress towards complete recovery than eleven cases treated by other means. At the end of the fourth day the redness and swelling disappeared, and by the eighth day nothing but a slight induration remained at the site of the former large and severe furuncle. This method deserves consideration."

OTITIS MEDIA

The writer has reports from several physicians who are treating otitis media successfully by autotherapy. The usual time for the condition to clear up is from ten days to two weeks. But we will not take up this phase of purulent infections at present, as others who have actually done this work are preparing papers on the subject. The technic the writer gave to these men who have carried out this work successfully was to employ the drains from the ear both at morning and evening dressings. Mix this with an ounce of water, allow it to stand for twenty-four hours with occasional agitation. Filter with a Berkefeld filter and inject twenty minims of the filtrate hypodermically.

PUERPERAL INFECTION

As soon as the temperature rises, place a cubic centimeter of the lochia in four ounces of water and shake well. Of this give a teaspoonful every hour for four doses, then stop. In the author's cases and those under the care of other physicians, the temperature dropped in from twenty four to forty eight hours.

Never repeat the dose until the patient has ceased improving on the preceding one.

INSTRUCTION FOR USING THE FILTER.

The apparatus the writer uses for autotherapeutic purposes has been designed especially for the use of the practising physician either at the bedside or in the office. In the clinical or bedside apparatus the air pressure forces the soluble toxin complex through the porcelain part. This is accomplished by means of an atomizer bulb that forces the air through a perforated stopper that fits into the top of the filter. With this apparatus, there is also a receiving flask with a broad base that allows the apparatus to stand alone. This is the simplest and cheapest apparatus and is called the "Duncan Autotherapeutic Apparatus No. 1."

The apparatus that is designed for office use does not have the atomizer bulb and cork, but instead has a part called a syphon that screws on the faucet. When the water is turned on, a suction of about twelve pounds to the square inch is created in the suction flask below, tending to suck or draw the toxin complex through the pores of the filter. This is called the "Duncan Autotherapeutic Apparatus No. 2." This apparatus has a standard or upright that gives stability, and keeps it from upsetting. The second apparatus may be started, and the physician may then leave. Returning in ten minutes he finds the toxins filtered, ready for use. The filtrate is usually colorless and perfectly transparent. If proper care is exercised during the filtering, the filtrate is perfectly sterile. The act of filtering is simplicity itself. The filter should be boiled for fifteen minutes to a half hour before and after using. After using the porcelain cylinder, it should be taken apart and rinsed under a running faucet and the accumulated matter brushed off lightly with a small moderately soft scrubbing brush. After each brushing a very thin surface layer of the surface itself is brushed off, thereby one regains a new filter surface. Before a new filter is put into use it should have water run through it, for it will run cloudy for a few minutes. The filters are so constructed that all parts are detachable to admit of thorough cleansing and sterilizing. There is no place where dirt can lodge. The toxins are not altered or changed by filtering. If it is deemed advisable a new porcelain part may be purchased for each patient, as the cost is but $1.25. A filter may last many months if proper attention is given to it. A number of extra rubber washers should be purchased and be at hand.

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SOME EXPERIENCES WITH RADIUM

By George Sterling Ryerson, M.D., C.M. (Tor.) L.R.C.P. and S. Edin.

Toronto

Having had some three years' experience in the treatment of diseases with radium, I think that it may be of interest to record the results of my observations in general terms.

Radium, like all other remedial agents, has passed through the stages of enthusiasm and excessive laudation, whence comes disappointment and depreciation until now it has reached the stage of acknowledged usefulness. I think that I can safely say, that given certain factors, radium is a fairly reliable remedy in some forms of sarcoma, epithelioma, nevus, angioma, cheloid, rodent ulcer, lupus vulgarus and some diseases of the eye, such as trachoma, spring catarrh, pterygium and certain ulcers of the cornea.

What are the factors? I would say, 1st, strength of the radium; 2nd, duration of application; 3rd, amount of infiltration; 4th, age of the patient, and 5th, location of the disease and its histological character. To take these factors in their order:

First: Strength. Weak applications of radium in malignant and semimalignant disease are not only useless but harmful. Used in low strength it not only does no good, but actually stimulates new growth. On the other hand, too great strength when used in such cases as angioma and nevus, produces violent reaction and is followed some months later by a pigmentary deposit which is very difficult to remove. A just mean must therefore be maintained, a knowledge of which must be obtained by experience.

In general, it may be said that too great strength is safer than too weak a dose. In other words, it is better to give a knockout blow than to irritate with pin pricks.

Second: Duration of Application. The length of time of application depends upon the form of disease under treatment and upon its locality. Where the disease is superficial, as in nevus, cheloid, acne, and ulceration of the cornea, the application should be short, from fifteen minutes in the latter instance to two hours in the former. Where the disease is more deeply situated, and where the ultrapenetrant rays are needed to reach the part, long sittings of six, twelve, twenty four or even forty eight hours are required. In the case of tumors, tubes are introduced into its substance and are left in situ for from twenty four to seventy two hours; external radiation must be used at the same time.

Third: The amount of filtration by lead or pure nickel screens depends upon the amount of penetration desired. The deeper the penetration, the thicker the screens and the longer the time required. Paper must be used in addition to cut off the secondary rays and prevent irritation of the skin.

Fourth: The age of the patient. My experience is that very old persons do not do well under radium treatment, although there are exceptions to this rule. On the other hand, I have had good results in persons in the sixties and seventies, and have found that persons suffering from nevus, who have reached middle life, are amenable to radium treatment, but that the cure comes about very slowly. In the young, the cure is comparatively quick. Sarcoma (round and giant celled) yield as readily in older as in younger persons. I have not yet had a failure in either of these varieties of sarcoma. Epithelioma affecting the skin in young and middle aged persons gives good results.

Lastly, the location of the lesion and its histological character. It makes considerable difference in prognosis whether the skin or mucous membrane is the seat of the affection. Cases in which the skin is the tissue principally involved give good results, the character of the disease, of course, being considered. Cases affecting the mucous membrane of the mouth do not as a rule do well. The tongue belongs to the doubtful list, though I have obtained one good result in an ulcer of the tongue apparently epitheliomatous. The larynx is uncertain. The results depend a good deal upon the amount of involvement and upon the biopsy of the growth. One case of fungating epithelioma of the lining membrane of the nose involving an ala, made a remarkable recovery. Epithelioma affecting the eyelids and conjuctiva did exceedingly well (three cases). In two cases of lupus vulgaris of the face and nose, the results were satisfactory, but whether they will be permanent or not I am unable to say. Rodent ulcers in my hands occurring in very old persons have not done well, but in the middle aged they have done better but the cures have not been so rapid as I was led to hope. In a case of osteosarcoma of the humurus I appear to have obtained an astonishingly good result. The same remark applies to one of myeloid sarcoma of the lower jaw, but too short a time has elapsed to be sure of a final result; to justify one in publishing details. Tubercular glands in children disappear rapidly under radium with plenty of screening material. In my cases the glandular enlargements were of recent growth.

To sum up: I believe, as the result of my personal experience, that radium is a therapeutic agent of permanent values and that its use will grow and extend as we get further experience and as a larger quantity becomes available at a reduced price. I am convinced that it will sometimes effect a cure where X rays fail because of its greater penetrating power, because of its peculiar inherent qualities and because of the long periods during which it can be used without injury to the skin. Finally, let me say that two or three milligrams of radium are useless for general work and that the bad reports which some men give are due to the insufficient amount used. Most cases require from ten to twenty milligrams or more. An insufficient dose is worse than useless. It is harmful.

SOME NEWER FEATURES OF THE ANTITUBERCULOSIS CAMPAIGN

BY A. J. RICKER, M.D.

St. Agathe, Quebec

Reviewing the work of the campaign against tuberculosis in the various countries during the past ten years one is struck with the scarcity of good results. It is true that here and there, where the crusade has been waged with intensity and concentration, there has been a tangible diminution in the mortality. New York City offers a notable example of this and the same may apply to New York State before the end of another decade. In both the city and state of New York very large sums of money have been spent to obtain these good results, to my mind more than was really necessary. The school of experience is expensive, it is said, but we are still attending its classes. There was a time when it was felt that the moment the public became educated regarding tuberculosis, it would cease to exist as a widespread disease. What an illusion to have nursed. All over the world today, you will find the public thoroughly enlightened concerning tuberculosis, and in spite of this fact the disease continues its harvest in the same old way. The reason of this may be found in the lack of accord among the leaders as to the best methods to be employed in prosecuting an effective campaign. To convince yourselves of this you only have to attend one international congress on tuberculosis, then you will understand what stands in the way of progress. The public fully realize that the sensible way to deal with the question is to alleviate suffering by providing institutions for those affected with the disease and the problem will then automatically solve itself within reasonable time. For years we have been debating as to whether sanatoria, dispensaries or hospitals for the incurable did the most good. Today we are in a position to appreciate the shortcomings of these various institutions. Again there has been the next question of climate further complicating matters. We know now that climate plays but a very small part in the curability of tuberculosis. Today we admit that environment is a much more important factor than climate. It is true that fresh air and generous feeding still remain the basis of any successful treatment, and will likely continue thus.

I have personal knowledge of institutions located in the very best climates available turning out most disheartening results. On the other hand I know of institutions situated in climates where you would not believe recuperation possible, turning out percentages of cures unequalled anywhere. I live in a health resort and happen to know how tuberculosis patients recover. It is simple enough; they imitate the doings of those they find on the spot, these having been trained to live according to a régime; they follow in their path unconsciously—it is the régime that helps so materially. For instance, let us take the city class method as worked out first in Boston; it owes its success to the régime, no climate can be invoked there. In addition to the class method, one should mention the open air school for children as another new feature in the campaign. We have learned to appreciate how much good it can do. In spite of all that has been attempted to deal with the problem, we are forced to admit that progress toward the eradication of the disease has been very slow indeed. Do we know the reason why? We are divided as to ways, means and methods. The vast army of invalids from tuberculosis is still at sea —drifting and drowning. Some are clutching to pieces of wreckage, while others seize upon straws such as newspaper advertisements thrown to them. While this struggle goes on before our very eyes, shall we go calmly on discussing the relative merits of the sanatorium, the dispensary, the hospital for incurables, the open air school, the class method and what not? We have lost much valuable time in this way and ignored the one cry which we should have heeded long ago. The only way to save a drowning man is first to get him out of the water. This is what we have neglected doing with the consumptive, we have failed in the first requisite.

In recent years there has been a distinct tendency towards federation among the various agencies interested in the tuberculosis problem. Even where consolidation has been effected, however, the results have not been effective. What we have needed right along is a unit system similar to that evolved at the Brompton Hospital in London, or rather at its suburban annex, the Frimley Sanatorium. Here the patients are usually received at the hospital and kept absolutely at rest until their degree of resistance is ascertained and then placed upon the Frimley method of treatment which employs alternately rest and exercise with a definite object in view, viz:—that of increasing resistance to tuberculous disease. The author of this method, Dr. More Paterson, rather ingeniously worked out this after finding that individual resistance measured by the opsonic index was the surest way to overcome tuberculosis when rest and exercise were used in well defined ways to raise that resistance above par. The form of rest used at Frimley is not what we have been using in this country. I usually refer to it as splinted rest of body and mind. We shall have to learn more about this before we can quite understand the Frimley method. As the patients improve they are tried out on well defined movements, usually beginning with very slow walking. The walks are gradually increased to the point of intolerance, when a reaction takes place, forcing the patient back to complete immobilization, in bed, in order to allow of all possible benefit to be derived from the autoinoculation, which has been ushered in by the reaction, as mentioned above. By this immobilized rest and graduated exercise, later followed by work, it is possible to bring back to a life of usefulness many patients whose condition at the outset might be considered as hopeless.

By the adoption of this method, it would be possible for a city, a town, or a community to deal with its tuberculosis problem all along the line. Among the advantages of the Frimley method are the following:

1. Every individual affected with tuberculosis has some chance of recovery, even those apparently hopelessly ill may be cured.
2. It features under one management the hospital for incurables, the sanatorium, the dispensary, and the colony for complete recuperation.
3. No special climate is necessary.
4. The duration of treatment is usually shortened by nearly one half.
5. Relapses are reduced to a minimum.
6. Occupation during treatment avoids turning out unfits, such as the reclining chair frequently does.

With such a definite system, you may federate existing agencies with a reasonable hope of success. It permits of consolidation and concentration along the channels of most needed reform and relief. It makes it possible to continue the campaign of education at little additional expense, an education which is practical because it is backed up by the demonstration or real live work.

The Frimley method, such as applied in Great Britain would not be workable with us unless some modifications were made. These modifications would in no wise affect the results. By close study and analysis you will come to the conclusion that as a system it will fit all our needs; that it covers practically every phase of the tuberculosis problem and will meet the urgent requirement of the moment by placing every consumptive, at every stage of the disease, in the best possible conditions to recover health, strength and usefulness.

A NEW FIELD OF MEDICAL EDUCATION

By T. D. Crothers, M.D.
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The following examples make the subject clear. A half a century or more ago there was a physician in New York who was the most popular and who had a larger patronage than all of the others. Among his associates he was recognized as a man of but average medical knowledge, and although a teacher in the college, he excelled in no particular, yet his patronage and private practice was enormous among the most intelligent people. While his fees were moderate, his income was immense, and he became very wealthy.

In the same college and on the same street was a physician of about the same age, a man of profound learning and scientific attainments, who as a teacher was recognized as a leader in medicine, and yet his private practice was very small. His hospital service was unattractive, and his whole life was a struggle with debts and efforts to pay his expenses.

The first physician was supposed by his friends to have personal magnetism which accounted for the difference; the other had little if any, and yet both were gentlemen very highly respected.

The popular doctor had a musical voice that was trained. His mother having been an actress in early life, insisted that her son should have a trained voice, and great attention was paid to this in the early years of his life. His manner and expression were delightfully easy and natural. His face was bland and smiling and his whole appearance was that of a cheery, healthy, hopeful man.

The other doctor had coarse ungainly manners, a scowling face and a harsh, discordant voice. While very sensible and clear, there was something about him that repelled at first, until one became accustomed to his peculiarities. The one was a success as a physician and a teacher. The other, a more scientific and learned man, was a failure, simply because his power of expression and his voice and manners were uncultivated.

This is true in other professions as well as in medicine. The difference between failure and success is not knowledge alone, but the person's capacity and availability to make use of and apply this training in a practical way. Training of the human voice is one of the most neglected of all the functions of the body.

The thoughts and impulses of the mind should be expressed in the very best way and not in the coarsest, harshest manner. The voice should be trained before the intellect, for if this is neglected, the intelligence can never be presented with the same effectiveness.

The greatest musical compositions of the world if presented on broken, discordant, inharmonious instruments, would attract very little or no attention. In the same way the human voice, out of tune, broken, jarring, untrained, can never convey facts and thoughts in their proper setting.

The human voice is capable of as thorough training and as high a development as the intellect. It is an instrument of marvelous capacity, almost beyond our power at present to realize, and yet in educational circles, the tradition that the voice needs no cultivation or training persists.

Where naturally or by accidental conditions it exhibits a degree of perfection, there is some intimation of what might be accomplished by culture and training. Clergymen who depend so much on the voice to make their messages helpful are sadly lacking and only occasionally is there any evidence of culture.

Lawyers show the same sad weakness. Among physicians it is an unknown art. No one thinks that a doctor's voice or manners have anything to do with the application of science to every day life.

Hundreds graduate every year from the best medical schools who show little or no training whatever of voice, expression or manners. On the contrary, broken, discordant notes, bronchial tones and nasal inflections that are discordant in the highest degree, together with awkward facial expressions, stilted manners, untrained control of the body and its activities, is the rule, to which there are few exceptions.

The same traditions exist today, the same one sided training; the same ignorant theories, that the voice like the stomach will take care of itself, that it needs no training.

Medical men realize the difference between a prosperous quack and a substantial, highly trained doctor; one with polished manners, with voice culture and a general ability to make the best of his powers of expression.

Many physicians cultivate certain manners and imitate certain ideals when they get into active practice. This is at great sacrifice and loss, that cannot easily be repaired. Voice culture should begin in the medical colleges and students should be taught that the voice is an organ capable of cultivation, of far more practical value than many other resources that are considered essential in the practice of medicine.

A musical voice, free from discords and harsh notes, with the proper inflections, brings harmonious tone and power, and with such an accomplishment the simplest thought expressed has a charm and fascination that attracts.

Illustrtions are many. The melodious voice of Henry Clay drew thousands to hear him, while the heavy bass tones of Daniel Webster drove hearers away. They preferred to read what Mr. Webster said, but wanted to personally hear Mr. Clay's voice.

How much more is the doctor with a musical voice welcomed to the sick room; how often do his soft tones bring a renewed courage and strength to the patient; like the harmonies of music, they strike responsive cords in the brain and the nervous system.

Books have been written showing that music has a peculiar power in the wards of hospitals, and that it is a veritable remedy for many disorders, but so far no one has pointed out the power of the human voice to do far more than mechanical instruments, either by vibrations or air currents.

With a discordant voice there is often a sad lack of expression, meaning, in both facial and general appearance. The medical student gets no instruction on voice culture. Voice culture and general manners of expression are ignored. The very things they need to put into use, the facts and training they have received are neglected.

What wonder, then, there are so many failures, disappointments and antagonisms, not from the amount of knowledge which the physician has received, but from his inability to apply it in the most effective manner. Thoughtful physicians after half a life or more of failures have wakened up to the fact that it was their inefficient voice and manners that were accountable, and not their knowledge and energy.

A Philadelphia physician gave as an excuse for not smoking and drinking at a banquet this statement: "My greatest power has been through my voice, and the ability I possess to make it convey the exact inflections of the thoughts which I wish to communicate. Spirits and tobacco will injure the tone, cause me to speak out of tune, and soon I shall lose this harp, of all others, so essential to make me a power in helping others." Physicians are often very careful to avoid sources of infection. If the same care was exercised to keep the voice clear and resonant, and to avoid the innumerable congestions which center on the nasal passages and vocal cords, they would have more power.

For many years there has been a famous school in Boston for the special culture of the voice and physical expression where the training has been along scientific lines. The students are taught the first principles of health and care of the body along the broadest physiological ranges and especial training of the voice, body, and the spontaneous energies in a natural, reasonable way.

To train the voice before the mind, to be able to speak well before writing, to be trained how to study, how to know and apply the facts of life in their broadest sense, are the foundations of all real culture, whether scientific or literary.

The student who does not know what he should know, and how to obtain it, in the most effective manner, and how to use it to the best advantage, is untrained.

The preparatory schools for medicine should be along these lines. Voice culture, body training, natural methods of expression, and every effort to develop the very best within him; then the scientific world of facts can be gleaned and put to service and stored away for the future. The great harmonies of music can be gathered as in a library of the brain, and the man can put them to service in the most effective way.

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EDITORIALS

DID MOSES FORESEE THE EUGENIC PARADOX?

The editorial in the August PRACTITIONER should attract attention. It raises one of the live issues of the day, and inasmuch as a very prevalent opinion has it that Moses forbade international marriages, it might be just as well to inquire what he really did do and what his personal practice and teachings were.

Moses himself married two wives. The white one was a Midianite, a Gentile who circumcised her own child. The colored one was an Ethiopian woman. Yet when Miriam and Aaron objected to a colored lady in the family circle, Miriam was punished with leprosy and Aaron as high priest had to declare his own sister unclean, and put her without the camp, or order it to be done. Moses introduced thirty two thousand Midianite virgins into the camp, all Gentiles of course.

He forbade intermarriage with the nations of Canaan, idolaters following obscene and degenerate practices. But as for others far off—"The women and little children shalt thou take" for thyself. Also "when thou seest a beautiful woman among the captives" thou shalt have her for a wife.

In the congregation of Israel were the descendants of Joseph and his Egyptian wife. Solomon in his wisdom, in full knowledge of the Mosaic Law, and at a time when he was living up to the teachings of that law, took for his first wife the daughter of Pharaoh.

In the Mosaic law is not one word against marriage outside the race save only with those who were followers of degenerate rites; but there are instances which would tend to show that Moses was quite aware of the results of close breeding, that the people had "much cattle" and could hardly be ignorant of it, and that both Moses and the congregation understood this law.

"The women, the little ones, and the cattle and all that is in the city, shalt thou take for a prey unto thyself." It hardly seems possible that any one, Rabbi or statesman, of today could suggest any more efficient method of furnishing new blood to all—"From the first born of him that sitteth upon the throne, to the first born of the maid servant that sitteth behind the mill, to the first born of the cattle."

DOUGLAS H. STEWART, M.D.

[NOTE.—Eugenic Paradox, a term used by the editor to describe the condition: "The Hebrew race furnishes 14 per cent. of immigrants, but nearly 33⅓ per cent. of all mental defectives. The race is nonalcoholic, but intermarries blood to blood.]

THE FAMILY DINNER

The important function of dinner, where all the family, as well as guests, should congregate, should be looked forward to with pleasant anticipation. This is often the only meal, in fact the only occasion at which all can meet, and as such it should be not only for the purpose of ingesting food sufficient to nourish and sustain, but a rendezvous where comradeship should prevail and where any and everything which will contribute to the zest and pleasure of the occasion should be indulged. Here we should be at our best, best in spirits, in humor, with clean bodies and clean minds. Every member of the family should be allowed and encouraged to meet at the dinner table to partake of the cheer, join in the conversation, relate and discuss happenings, personal or otherwise of the day, ask and receive advice without restriction. There should be jollity, laughter in abundance, not at any individual present, but pertaining to happenings; anecdotes; clean humor and amusement. A member of the family should never be displeased or harshly spoken to at the dinner table, for the mental effect will be bad, besides it will not only disturb all those present mentally, but as surely the function of digestion. Preparation should be carefully made for this important function of dinner *en famille,* everything done in fact which will add to the pleasure of all of the individual members, from the infant to the grandsire, and every member of the family should be promptly present and at his or her best. We believe in having the baby, if there be one, at the dinner just as soon as it can measurably help itself, to take its part in the festivities, for the educational, moral and other advantages to be thus gained, and that due attention should be given him or her with encouragement to prattle or talk and be talked to, for this will count for much in fashioning his after life. The home life, particularly the family gatherings of the dining room, will remain a picture until the end of life; for this picture, good or bad, will be a part of our lives, under any and all conditions, whether it is carried into the hovel or palace, prison or chapel, in joy and sorrow, whether when tossed upon the stormy billows of life, or soothed in the cradle of prosperity, until the hair becomes white, the form bent, it will be our picture, for we will be a part of it. Blessed be the memories of home, and thrice blessed the companionship and comradeship of the daily gatherings at our father's table. It is these memories of home life that will remain with us to the end. There must be some of us who are compelled to dine alone, some whose family ties have been severed by losses. To such a one the loss will be accentuated by memories of his own and his father's dining room and the gatherings there.

INTESTINAL DYSPEPSIA IN CHILDREN

Much is heard nowadays concerning intestinal indigestion in adults. Sir Arbuthnot Lane and several American medical men have been writing largely of late with regard to intestinal statis and its treatment, and to some extent views have undergone a considerable amount of revision respecting this form of indigestion and its treatment. Dr. Edmund Cantley is an acknowledged authority in England on diseases of children, and recently he delivered a lecture on intestinal dyspepsia in children which was published in the *Medical Press and Circular,* February 19, 1913. He described at some length, acute intestinal dyspepsia, chronic intestinal dyspepsia, carbohydrate or food fever, mucous disease, catarrh of the small and large intestine, hepatic and pancreatic inadequacy and achylia gastrica. Excellent and valuable as these descriptions were, there is no space here to more than notice them, and attention will be concentrated upon the differential diagnosis and treatment for efficient treatment of simple intestinal dyspepsia depends on accurate diagnosis. It is always essential to exclude tuberculosis, especially the abdominal forms. In making a differential diagnosis, especially in distinguishing intestinal inadequacy, the microscopical examination of the stools is of very great value, though naked eye appearances are not to be despised. The odor. color, reaction, consistency, and the presence or absence of mucus afford valuable assistance in the absence of the most accurate results of the pathological laboratory. If the stools are apparently normal the child may be treated for simple intestinal dyspepsia. If they are white, ascertain whether the absence of color is due to excess of milk curd, complete absence of bile, conversion of bile into urobilinogen, or excess of fat. Moreover, it is important to exclude the presence of worms. The simpler causes of colic must be excluded, *i. e.,* iced drinks and foods, cold feet and chills, as well as more serious ones, such as lead poisoning and organic disease. Treatment is general: dietetic and local. In severe cases, with marked neurotic symptoms, a few days in bed is a useful preliminary. Mere local treatment is insufficient, for malnutrition implies general ill-health. Prevent physical or mental overstrain, and forbid working for school examinations. Change of air and surroundings cure many cases quickly, perhaps, through the mental effect, the holiday, and the increased metabolism due to an open air life. Keep the abdomen and extremities warm and dry. Attend to the teeth. Remove enlarged tonsils and adenoids, if present. Let the diet consist of simple, regular mixed meals. Reduce milk if it is given in excess, and dilute it. Many of these children are stuffed with milk on account of the malnutrition, and are made worse thereby. Limit the amount of fermentable foods, sweets, jams and carbohydrates generally. As the child improves, try porridge or other cereal foods and brown bread. At first the diet should be limited to eggs, fresh meat, bacon, butter and dripping dry toast, rusks and malted foods, greens passed through a sieve; ripe fruit may be added later. New bread, new potatoes, fried fish, hot greasy foods, pickles and stringy vegetables must be avoided. Cream suits a few children, especially country cream devoid of preservatives, and is best given with stewed fruit. On the whole, Cantley prefers to rely on butter, margarine, bacon fat and beef drippings to supply the necessary hydrocarbons. Many children develop intestinal indigestion because they are stuffed with cream and cod liver oil on the supposition that the malnutrition may be of tuberculous origin. For the same reason, they are sent to the seaside, whereas country air is much more suitable. Give no cod liver oil or hypophosphites. If there is constipation, and especially if there is mucus in the stools, give grey powder, or rhubarb and soda, at night, and a dose of sodium sulphate or apenta water in the morning. And prescribe a mixture of alkali, nux vomica and a vegetable bitter to be taken three times a day before meals. Maltine and mild alcoholic drinks are also useful. Other appropriate remedies are bismuth and carbonate of magnesia for diarrhea, charcoal and salol for tympanites and excess of mucus; decoction of aloes, dr. ½-i before food, calomel for white stools and small doses of Dover's powder or tincture of opium for dysentery. Much more reliance should be placed upon dietetic measures than on drugs and attention should be paid to general hygiene, sleep, exercise and amusements.

FALSE DYSPEPSIAS

Dyspepsia is assuredly one of the most prevalent complaints of civilized lands, and not less certainly a remarkably common affection in this country. Indeed, it is somewhat extraordinary to witness the large number of people suffering obviously from one form or another of indigestion who perambulate the streets and use the restaurants of American cities. It may be taken for granted then that dyspepsia is always a subject to arouse interest in American readers. In the *Medical Press and Circular,* January 1, 1912, Dr. Alexander Cawadias of the Faculty of Medicine of Paris endeavors to distinguish between true and false dyspepsia. His aim is to determine clearly the functional gastric syndrome of dyspepsia; to separate if possible from the false gastric syndromes, the false gastropathies of Dejerine; the psychogenous dyspepsias of Strumpell. Cawadias refers to false dyspepsias as not belonging at all to the domain of digestive pathology, but to that of psychiatry. An emotional derangement, or a series of chagrins and of ennui is found at the base of false dyspepsia, and it is found to develop in those who are predisposed to neurosis and in asthmatic subjects. The patient is afflicted with a chaos of subjective troubles, but the following general characteristics can be distinguished. These phenomena are at first irregular as regards character and time of appearance. They have no direct relationship to the alimentation. To be brief, these false gastropathies are, in fact, psychic syndromes, taking their origin from auto or heterosuggestion, and may be made to disappear from the effect of a course of psychotherapy by suggestion. To diagnosis hysterical dyspepsia, Cawadias points out that it is necessary to examine the stomach with great care so as to be able to exclude absolutely true dyspepsias resulting from gross lesions of the stomach, gastritis, ulcer and so on. It is probable that many of the dyspepsias from which so many American men and women suffer are of nervous origin and are not true dyspepsias. It must be borne in mind, however, that without careful examination, it is impossible to determine this. The whole question, after all, resolves itself into one of accurate diagnosis, which, in the instance of dyspepsia is, perhaps, more readily reached by infinite care than by briliancy.

GLYCEROPHOSPHATES

The April number of *Merck's Archives* considers the therapeutic use of the glycerophosphates. The most important glycerophosphates for therapeutic use are the sodium, calcium and iron salts of glycerophosphoric acid; free glycerophosphorus is of little value therapeutically. It serves principally as an addition to solutions of glycerophosphates, when these for any reason are required to give an acid reaction. Robin first recommended sodium glycerophosphate as a nerve tonic, by the mouth and subcutaneously, and obtained most excellent results from its use in convalescence from influenza and other infectious diseases, and also in nervous asthenia of any origin, such as sciatica, tic douloureaux, and in Addison's disease, lumbago, Graves' disease, and phosphaturia. It is less effective in tabes dorsalis, in which its action seems to be restricted to the diminution of the lightning pains. Starr had satisfactory results with the sodium glycerophosphate in Graves' disease. In one case in which a variety of remedies had been tried for one and a half years without success, he succeeded in bringing about a decided improvement in a fortnight. Kahane, as the result of many trials, confirmed the value of sodium glycerophosphate when used internally in Graves' disease, and also in chronic myelitis, hysteria, neurasthenia and neuroses. There is no need to be too cautious in the internal administration of sodium glycerophosphate, as it is perfectly harmless. As to calcium glycerophosphate, it has been pointed out that the action of calcium phosphate and of calcium glycerophosphate differs both physiologically and pharmacologically. Robin considers the calcium salt to be indicated largely in the same class as sodium, and considers the subcutaneous administration more effective as a rule, but he has obtained satisfactory results from its internal use. Patin gives incontinence of urine as another indication for calcium glycerophosphate. The drug also deserves due consideration in the treatment of pulmonary tuberculosis, as well as in rickets. The ferric salt is of special value in chlorosis and anemia, alone or combined with the calcium salt.

SUICIDE

Statistics regarding the causes of death for the registration area of the United States, prepared under the direction of Dr. Wilbur, chief statistician for vital statistics, give the total number of deaths from suicide in 1911 as 9,622, an increase of 1,032 over the preceding year. The death rate from this cause, however, increased only from 16 to 16.2 per 100,000, and was lower than that for 1909 (16.5), or 1908 (17.8). The death rate of the white population from suicide in the registration area (16.5) was higher than that of the colored population (10.3). Among the registration States, the highest death rates from this cause were in California, 30.1; Montana, 27.8; Washington, 20.7, and Vermont, 20.1, and among the cities of 100,000 population and over, San Francisco, 39.4; St. Louis, 37.7; Los Angeles, 37.2; Denver, 35.6, and Oakland, 35.1.

Suicide forms an interesting psychological study. It increases with education and civilization, and it has been said that the spread of the alphabet is coincident with that of self murder. The savage rarely takes his own life. In Italy, Russia and Spain, where the standard of education is low, the fewest suicides on the continent of Europe occur, while in France and Germany, where the people are more sensitive and refined and where the standard of education is higher, the percentage is much increased.

The causes of suicide are almost as numerous as the methods employed to accomplish them. Alcohol plays an important part, and in Germany many suicides are laid to it as a cause. Heredity has also some bearing on the subject, as there are a number of instances on record in which entire families have died in this way.

Perhaps we should adopt the view of those charitable philosophers who claim that all who commit suicide are insane, in that they have lost the instinct of self preservation. Be that as it may, all who contemplate thus abruptly ending their own existence would do well to ponder over the words of Dr. Johnson, "Consider, sir, how insignificant this matter will seem to you a year hence."

ARE THERE TOO MANY MEDICAL SOCIETIES?

We have before us a copy of the preliminary programme of the Clinical Congress of Surgeons of North America, which is to meet in Chicago next November, and which, judging by its rapid growth during the four years of its existence and by the large attendance at the last meeting held in New York City, promises to become a formidable rival attraction to the meetings of the American Medical Association. This naturally leads to the query, Is the medical profession becoming burdened with too many medical societies? We have, first, the International Medical Congress and the various international bodies dealing with the special branches of medicine and surgery. In this country we have the American Medical Association, the Congress of American Physicians and Surgeons and its component societies, which recently convened in Washington, the different State and county societies, besides a host of minor academies and clubs and meetings for the discussion of medical topics. We would not gainsay that each and every one of these scientific bodies was created to fill a "long felt want," and while some, perhaps, have drifted away from the high ideals of their founders, still the majority carry on their work in an earnest, unselfish spirit and need offer no apology for their existence; but by reducing the number of our medical societies, would there not be a proportional increase in the quality and value of the scientific contributions, not to speak of the saving of time and money to the busy practitioner? How many evenings have we wasted listening to long and wearisome papers which impressed one with nothing but their lack of condensation, when the time could have been more profitably spent in study or pastime, or in the pursuit of one's favorite hobby, and we trust that every physician has a hobby, whether it be in the broader fields that help mold the world's history, or in one of the more secluded byways of science, literature or art.

WHAT IS NEURASTHENIA?

Is it not a fact, asks a correspondent of the *Medical Press*, that when neurasthenia is talked about a mistake is in most instances made of confounding a mere name with an entity? Is it not more than doubtful whether there is any such a thing as neurasthenia? Can nervous debility exist without general debility, and in how many cases of so called neurasthenia is it possible to discover the cause in the nervous system? There are a few cases in which this may be possible. Their origin is mostly psychic. They are a manifestation in greater or less degree of weakening or loss of "the will to live." The purest examples are cases of "broken heart." These, if rare, are by no means unknown. Cases have been many in which grief for loss of a truly beloved one—wife, husband, or lover, has been followed by a gradual failure of nervous energy and ultimate death. And such examples are seen in individuals previously in perfect health and with physical qualities of the highest. Putting aside such cases, and cases of nervous failure owing to definite degenerative changes in nerve centers, has there been a case which could be scientifically classed as neurasthenia? Whatever phenomena or symptoms may be recognizable through the nervous system, the vast majority of cases of neurasthenia that we have seen have yielded on examination, evidence of causation from other sources, and there will never be found any treatment satisfactory until the true cause has been discovered and dealt with. There is no name more commonly in the mouths of the public than neurasthenia, and in no direction of treatment is more harm being done than in the administration of so called tonics and the application of remedies directed to the nervous system upon which they have no power whatever to act.

RUBBER FINGER STALL LEFT IN WOUND

A former patient of the Sloane Maternity Hospital is suing that institution for $5,000 damages, claiming that after an operation performed upon her January last for the removal of an abdominal tumor, the surgeons negligently left in the abdominal cavity a rubber finger stall. The patient states that the operation was suddenly suspended for fear of threatening developments, and the wound but partially closed. After three weeks she was discharged. During the next four months she made several visits to the hospital each week for treatment, but the finger stall was not discovered until she herself, while dressing the wound on May 23rd last, noticed that there was a foreign substance in the wound, and, upon investigation, found the rubber.

We have all heard of towels, sponges and instruments being left in abdominal wounds, and Dr. Robert F. Weir, with his inimitable humor, once said it was a wise precaution for the surgeon to count his nurses before closing the abdomen; but this is the first case on record, so far as we know, where a rubber finger stall has been left behind. The case therefore established a precedent in which New York claims distinct priority.

THE AVERAGE LENGTH OF LIFE

Four hundred years ago the average length of human life was between eighteen and twenty years. One hundred years ago the average human life was less than thirty. The average human life today reaches nearly forty years. This shows what medical science has done for human life.

THE GERM OF RABIES

Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research in New York has, it is reported, succeeded in isolating and cultivating the bacillus responsible for rabies. Dr. Noguchi thus describes his researches:

"In the early part of 1912 I undertook to cultivate the habic virus and I have now obtained certain results. About fifty series of cultivations were made with the brain or medulla removed aseptically from rabbits, guineapigs and dogs infected with 'street' virus, 'passage' virus, or 'fixed' virus. Usually the animals were etherized just before spontaneous death occurred.

"The method that has yielded the result to be reported is similar to that employed successfully for the cultivation of the spirochetæ of relapsing fever. In the cultures very minute granular bodies arise, which on subsequent transplantation reappear in the new cultures through many generations. The same bodies, so far as appearances are concerned, are obtained from 'street,' 'passage' and 'fixed' virus. On four different occasions I observed in the cultures from 'passage' and 'fixed' virus nucleated round or oval bodies, surrounded with membranes totally different from the minuter granular bodies, although arising in the cultures in which the latter occurred. Their appearance was sudden and their duration four to five days, when they diminished coincident with an increase in granular bodies. In one of the four instances the larger bodies appeared in a culture obtained from the brain of a rabbit previously inoculated with a culture of 'passage' virus which had given rise to the symptoms of rabies. In two of the instances the larger nucleated bodies arose in cultures prepared from fixed virus, in which the negri bodies were difficult to demonstrate either in sections or in films."

DISCARDED BATTLESHIPS FOR THE TUBERCULOUS

Resolutions were offered by Dr. S. Adolphus Knopf, of New York City, and passed at the recent Congress on School Hygiene at Buffalo, N. Y., asking the Government to donate to the States discarded battleships for the tuberculosis cause. Some objections were made because of the considerable cost which the alerations of these ships would involve. As a matter of fact, however, this expense in converting the ships into floating sanatoria, preventoria and open air schools would be very much less than the cost of sites and buildings. Besides there would be lacking the objection because of prejudice aroused in neighboring districts against the establishment of institutions for the tuberculous. It occurs to us that the scheme is feasible, would prove economical and decidedly helpful. Italy has already adopted the scheme, and we learn that it has so far worked successfully.

DIGEST OF CURRENT MEDICAL LITERATURE

Skin Diseases Among Full Blooded Indians.—Lain, Journal American Medical Association, July 19, 1913, arrives at the following conclusions: The full blood Indian is not subject to the variety of dermatological lesions found in the white race. They are almost free from such skin diseases as may be produced or excited by menstrual disorders or an overtaxed nervous system.

Correlation between Complexion and Resistance to Autointoxication.—Andrewes in discussing this subject in *Progress* of the Royal Society of Medicine, states that he desires to call attention to the extraordinary variation in the resisting power of the individual as manifested by the color of the hair, not only to the changes in the fat and color of the skin, but to all other consequences of autointoxication. The darker the hair the lower the resisting power to autointoxication, and the more conspicuous the changes which result from it. On the other hand, if the hair is red or of a peculiar towy color the individual has a minimum of resisting power to the action of the poisons, and that resisting power will vary with the distribution and the intensity of the redness of the hair. This is manifested very conspicuously in the influence exerted by the toxins on the appetites of the individual. The darker haired subject will loathe the sight of food, and frequently abhor sexual relationship, while the red haired subject rarely manifests these effects, even in the extreme conditions of intestinal stasis. This influence of toxins on the normal appetite is of far reaching importance in our present state of civilization, and is the source of much misery, discontent and trouble, to which I can only allude.

Secretin as a Remedy in Gastrointestinal Disorders.—Harrower, *New York Medical Journal,* August 16, 1913, concludes that secretin is a specific exictant of all of the important digestive juices, pancreatic, gastric, hepatic and intestinal. That it may be secured as are other animal extracts, and that it has the advantage of being a definite, stable preparation. It may be given by mouth with good results in gastrohepatic intestinal disorders described under the general head of digestive insufficiencies. Such medication he declares is absolutely physiological, as in certain cases it seems that secretin is a necessary substance which the body is not supplying in normal amount, just as thyroidin supplies to the athyroidic a most necessary hormon, the lack of which happens to be more definitely manifest. Secretin is not a digestant, having no influence whatever comparable with that of pepsin or pancreatin, but its fundamental value is superior to these ferments, as well as to other forms of stimulation, such as strychnine, ginger, etc. The administration of secretin is quite harmless, causes no habit, and does not interfere with other orthodox treatment, and its administration may with advantage be associated with digestants, tonics, etc.

Ovarian Extracts.—Bandler, in the *Archives of Diagnosis*, January, 1913. (*N. Y. Medical Journal*, August 16, 1913) states that in certain forms of dysmenorrhea which he ascribes to a mild degree of hyperthyroidism, ovarian extract is of great value. He has also found it useful in lactation, atrophy of the uterus and in the flashes of the climacteric period, natural or artificial, especially if administration is begun early. In anemias, including genuine chlorosis, it also serves well. Combinations of iron, arsenic and ovarian extract are particularly useful in such cases; whenever iron is indicated he gives ovarian extract with it. In amenorrhea relative or absolute, he has found the ovarian preparations the best remedy. They produce no untoward results and the main contraindication consists of profuse bleeding. Bendler often combines ovarian extract with thyroid, especially to promote metabolism and encourages oxidation. The annoying symptoms sometimes produced by thyroid are often greatly diminished by addition of ovarian extract.

Functional Psychoneuroses.—Langdon has in the *Lancet-Clinic*, December 21, 1912, an interesting article in which he discusses hysteria, neurasthenia and psychasthenia. The keynotes of hysteria are retractions of the field of consciousness wholly, or in part, with suggestibility, a necessary causal and curative factor: The patient cannot will right. In neurasthenia there are varied morbid subjective sensations and undue fatigability, with defective nutrition and metabolism as a basis: The patient cannot feel right. Psychasthenia is marked by morbid fears, anticipations and impulsions: The patient cannot think right.

Uterine Hemorrhage Associated with Pellagra.—Peete (*Old Dominion Journal of Medicine and Surgery*, August, 1912; calls attention to a symptom which he has noted in eight cases of pellagra, which consists of marked uterine hemorrhage appearing before the ordinary pathognomonic symptoms. The observation is presented by the writer with the intention of interpreting this sign as diagnostic of the possibility of pellagra.

SOCIETY REPORTS

At the last meeting of the New York Neurological Society, held at the Academy of Medicine, June 3, 1913, Dr. J. Arthur Booth presented a case of Cortical Astereognosis from a Cyst, with Operation and Improvement. The patient, a young man of twenty-two, was a perfectly healthy and intelligent lad until July 12, 1906, when he met with the following accident: He was on a spile driver and attempted to descend to the dock by sliding down a rope. When about 35 feet from the ground one of his companions jerked the rope and he fell, striking on his head and right arm. He was taken to the Perth Amboy Hospital, where an examination revealed a compound, comminuted fracture of the right parietooccipital region and of the right forearm. He was unconscious for five days, but finally made a good recovery, and after a period of seventeen days was discharged as cured.

After his return home it was noticed that he was dull and stupid and quite changed from his former self. A year later he had what was called one or two "sinking spells," without any spasmodic movements of the muscles. He had one attack in 1908, another in 1909, a third in 1910, a fourth in 1911 and two in October, 1912. In March, 1913, he had three attacks, and during the following month he had two, which he described as follows: "I feel a tingling and numbness in the right hand; it is then drawn up and I feel my head turning to the right; then I lose myself." His mother stated that he then became stiff all over, and that on one occasion he had bitten his tongue. Besides these epileptoid attacks he frequently had severe headaches, limited to the left frontoparietal region, the pain being so severe at times that he had been noticed to pound his head with his fist.

Examination by Dr. Booth, April 15, 1913: From a bright, intelligent schoolboy, standing at the head of his class, he was now apathetic and dull; all mental processes were slow in reaction, with a very faulty memory both for recent and past events. He answered questions slowly and hesitatingly, but there were no motor speech defects. The superficial and deep reflexes were present and normal, excepting the knee jerks, which were exaggerated. No ankle clonus nor Babinski. The tongue was protruded in a straight line and there was no paralysis of the facial muscles. The equilibrium was fairly good. There was no marked ataxia. He was righthanded, and the right upper extremity was weaker than the left, though it must be remembered that the right forearm was broken at the time of the accident. There was a decided loss of sensation over the right upper extremity, and to a lesser degree on the right side of the face, as compared with the left. The same applied to the right thigh, as compared with the left. The patient was unable to write anything but his name, which he did slowly and with difficulty. He could, however, write from copy. There was no transposition or misuse of words. He was able to count up to 100, and recognized figures when they were placed before him. He was unable to recognize but two letters of the alphabet, namely, A and P, but could not read the simplest word or sentence. When blindfolded he failed to recognize a bottle, knife, watch, coins of different denomination, chain, key or pipe with the right hand, but readily did so with the left. The pupils were widely dilated, but reacted slowly to light and accommodation. The fundi were normal.

Taking into consideration the above findings, a diagnosis was made of a cyst in the left angular gyrus, the result of a former hemorrhage, and an operation for its removal advised.

Operation, April 26, 1913, by Dr. George E. Brewer: Upon elevating the usual parietotemporal osteoplastic flap, the dura was found tense and bulging just beneath the parietal eminence. It was incised, and in so doing a cyst was opened in the upper and posterior part of the exposed area The cyst was about the size of a silver half dollar, situated over the left angular gyrus, extending forward and bound down with adhesions These were freed and a drain placed in the cyst cavity after it was completely emptied of about two drams of clear fluid.

The patient made a good recovery from the ether, but during the next three days he had a number of convulsive seizures, which began in the left hand and gradually became general. Dr. Booth then suggested that the drain be removed, and when this was done the convulsions ceased and he had remained free from them since. He continued to improve, and on May 12th, three weeks after the operation, he read from a book that was handed him, "Night Orderly Report," and from a newspaper, "Giants Win." He left the hospital on May 18th.

When Dr. Booth saw him again, on June 3d, he had gained ten pounds in weight. Mentally he was much brighter and there was a marked improvement in his memory. He had had no further convulsive attacks and no headache. There was still slight weakness of the right hand, with marked astereognosis. He could recognize a majority of the letters of the alphabet, could read a few simple words and two short sentences.

"Hysteroepilepsy (Piblokto) Among the Eskimos." Dr. A. A. Brill presented a paper on this subject, in which he said that while reading Peary's fascinating book, "The North Pole," he was especially interested in what Peary called a peculiar form of nervous affection found among the Eskimos of the western coast of Greenland from Cape York to Etah, which they termed piblokto, and which he designated as a form of hysteria. Peary stated that he had never known a child to have piblokto, but that some of the adult Eskimos would have an attack every day or two, and that one day they had five cases.

Concerning the attack proper, Peary spoke as follows: "The patient, usually a woman, begins to scream and tear off and destroy her clothing. If on a ship, she will walk up and down the deck, screaming and gesticulating, and generally in a state of nudity, though the thermometer may be in the minus forties. As the intensity of the attack increases, she will sometimes leap over the rail upon the ice, running perhaps half a mile. The attack may last a few minutes, an hour or even more, and some sufferers become so wild that they would continue running about on the ice perfectly naked until they froze to death if they were not forcibly brought back." Peary goes on to say that when the attack takes place indoors, nobody pays much attention to it unless the sufferer should reach for a knife or attempt to injure some one. The attack usually ends in a fit of weeping, and when the patient quiets down the eyes are bloodshot, the pulse high, and the whole body trembles for an hour or so afterward. It was also remarkable that the Eskimo dog suffered from a morbid condition by the same name. Peary stated that the disease did not seem to be infectious, though its manifestations were similar to those of hydrophobia.

For diagnostic purposes, Dr. Brill said he tried to ascertain whether these attacks of piblokto were accompanied by a loss of consciousness. Professor Donald B. MacMillan, an anthropologist, and one of Peary's trusted lieutenants during the successful quest of the North Pole in 1908-1909, was certain that all of the cases he saw showed a loss of consciousness, and that they were all in a confused state. Thus, they were perfectly harmless when left to themselves, but showed a blind resistance if prevented from following out their various vagaries.

Granting this loss of consciousness to be so, it would not simplify matters as regarded diagnosis. Loss of consciousness might be a concomitant symptom of either hysteria or epilepsy. So far as could be ascertained, none of those afflicted ever showed a typical *grand mal* attack. On the other hand, everything pointed to hysteria. The disease was almost exclusively confined to the female sex. Professor MacMillan quoted Peary as saying that in twenty years he saw only one man who had what he thought was piblokto, and the disease was practically unknown in children. Of the twenty women aboard the "Roosevelt," eight had piblokto. The Eskimos themselves thought the disease had something to do with the evil spirit, and for that reason they were reluctant to touch the afflicted during the attack.

The only probable cause of this disease mentioned by Peary was of a psychogenetic nature. He said: "The immediate cause of this affection is hard to trace, though sometimes it seems to be the result of brooding over absent or dead relatives, or a fear of the future." In other words, in the ultimate analysis, it was love and hunger. Professor MacMillan believed the attacks were caused by abuse. Most of the Eskimo women who had this disease were of a jealous disposition; they either imagined themselves ill treated or they actually suffered abuse at the hands of their husbands, who beat them with their fists. Many Eskimos were cruel to their wives. Speaking of the attacks, he said they reminded him of a little child discouraged and unhappy because it imagined that no one loved it nor cared for it, and therefore ran away. This plainly showed, Dr. Brill said, that as in civilized people, it was hunger and love—especially the latter—that played the great part in the causation of hysteria. It was also interesting to note that it was not the lack of the gross sexual, but the ungratified desire for love that was the determining factor.

THERAPEUTIC PROGRESS

Histopin.—Saalfeld, *Berliner Klinische Wochenschrift*, June 16, 1913 (*N. Y. Med. Journal*, August 9, 1913), states that the fluid histopin is a harmless remedy for immunizing the tissue surrounding furuncles; further, that it exerts a favorably palliative influence on sycosis vulgaris. This last is also observed in the use of histopin ointment, which may also be considered a specific in impetigo contagiosa except in those rare cases where staphylococci and streptococci are believed to be etiological factors.

Noviform.—Patek, *Deutsche Medizinische Wochenschrift*, June 5, 1913, declares that noviform is odorless, nonirritating, exsiccative and astringent, and that it may be used as a preferable substitute for iodoform.

Pituitary Extract in the Treatment of Hemoptysis.—Rist, *Le Bulletin Medical*, reported to the Société Médical des Hospitaux that he had obtained excellent results in the treatment of hemoptysis by means of the intravenous injection of pituitary extract. One half c.c. of the extract, representing one decigram of fresh substance, is the dose injected by the author into a vein at the bend of the elbow. The hemostotic action is generally immediate. A single injection suffices to arrest a profuse and rebellious pulmonary hemorrhage. No other remedy has so lasting and rapid an effect.

Bromine-Borneol Combinations in Disturbances of the Climacteric.—Oppenheim, in the *Deutsche Medizinische Wochenschrift*, June 5, 1913, reports on the use of the above remedy, which by reason of its sedative action has been tested in disturbances of the climacteric. The results are said to have been satisfactory. The drug, however, is not supposed to take the place of ovarian extracts in making up for the withdrawal symptoms, and the two should be given whenever the latter is in evidence.

Fibrolysin in Chronic Pneumonia.—Brenner, *Munchener Medizinische Wochenschrift*, July 15, 1913, reports cases of pneumonia in young subjects which did not clear up at the proper time and which were notably resistant to treatment. In a patient of this sort, injections of fibrolysin were made between the shoulder blades, the shadow was seen to clear up remarkably within a few days. The patient began to cough and expectorate freely, while resolution promptly set in. The author believes this a good advance in medicine.

Treatment of Cardiac Edema with Alkali and Salt.—Newburgh, *Boston Medical and Surgical Journal*, July 10, 1913, reports having found that the administration of alkali in cases of cardiac edema does not cause diuresis, neither does the administration of alkali plus salt in cardiac edema cause diuresis. But the use of alkali plus salt to patients with heart disease may cause edema and appears to be positively harmful.

Sedobrol.—Eugelen, *Deutsche Medizinische Wochenschrift*, June 24, 1913, reports on sedobrol as the latest bromine preparation. It is a pleasant tasting remedy, free from sodium chloride. In appearance, odor and taste it resembles a concentrated bouillon. It has no ill effect on the mucous membrane of the stomach. Eugelen considers sedobrol an important addition to the remedies in psychotherapy.

Tuberculin Treatment of Bronchial Asthma.—Frankfurter, *Weiner Klinische Wochenschrift*, June 12, 1913, says that there is a causal connection between bronchial asthma and tuberculosis, and that a systematic treatment with tuberculin may reduce the number of attacks, if persisted in sufficiently long.

Menthrospirin.—Lowenheim, in the *Medizinische Klinik*, May 11, 1913, reports this preparation to be an acetylsalicylic acid menthol ester, liquid with a light yellowish color. It is dispensed in gelatin capsules; dose 0.25 gm. (4 grains). The anesthesic and analgesic action is prolonged, being noticeable on the mucous membrane of the air passages, coincidently accelerating and strengthening the action of the heart. The antifebrile action of the salicylic acid component is noticeable. Menthol and salicyluric acid are found in the urine, proving that the compound is split up in the digestive tract.

The Salt Pack in Rheumatic Gout.—Dr. Jonathan Hutchison says (Polyclinic) that he knows of no remedy so effectual in getting rid of the irritability and synovial infusion, in connection with rheumatic gout, as the salt pack. This consists of flannel, soaked in a saturated brine of common salt, which is wrapped around the affected joint, covered with oiled silk and a bandage, and kept on the whole night. It should be applied every night until the cure is effected.

Amphotropin.—A urinary antiseptic indicated in cystitis, pyelitis; said to be prophylactic against infectious diseases and surgical conditions of the urinary apparatus. Dose: 7½ to 12 grains.

MISCELLANY

HYPOPHYSIN

The active constituents of the infundibular portion of the hypophysis, a yellowish white crystalline powder which dissolves readily in water with weakly acid reaction, difficultly soluble in alcohol acetone, acetic ether, etc. It is prepared as follows: An extract of the infundibular portion of the gland is completely freed from albumin by precipitation with phospotungstic acid, the precipitate then decomposed with baryta: after removal of the latter by sulphuric acid, hypophysin is allowed to crystallize from the weakly acid filtrate.

Animal experiments with 1 to 1000 solution of hypophysin agrees with the clinical findings concerning the qualitative and quantitative activity of the gland extract. Blood pressure increases slightly, then decreases, after which a very high increase of pressure should follow when injected intravenously. Injected into the muscles this increase is not so great, but persists for a considerably longer period. The variation of the blood pressure corresponds to the respiration. Rabbits tolerated doses of 10 mg. hypophysin corresponding to 10 c. c. of the 1 to 1000 solution without injury. Intramuscular and subcutaneous injections of hypophysin is employed in exciting uterine contractions or in increasing those already present in the following conditions: For primary and secondary uterine inertia; for severe atony of the uterus; for hastening normal labor; in labor in the narcotic half sleep: and in the after birth period to prevent uterine hemorrhages and to counteract atony.

Usual dose of 1 to 1000 solution, 1 c. c., which may be repeated after the effect of the fresh dose wears away.

SUPERVISION OF COMMUNICABLE DISEASES IN NEW YORK

The sanitary and public health control of the 5,100,000 persons comprising the population of New York City must of necessity furnish not only much information of general interest, but also many object lessons of success and failure which can well receive wide attention from public health officers and sanitarians. The October bulletin of the New York Department of Health reviews the organization and work of its division of communicable diseases, a division instituted in 1892 as a defensive measure against a threatened invasion of cholera. When this danger had passed, the division undertook the study and control of diphtheria and made bacteriologic examinations for tubercle bacilli for private physicians, together with routine laboratory reports on suspected cases of typhoid, malaria and meningitis. The sanitary supervision of these diseases followed naturally.

In 1905 the division was put on its present basis. Its functions now include (1) the sanitary supervision of tuberculosis, typhoid, cerebrospinal meningitis, pneumonia, malaria, puerperal septicemia, abortion, erysipelas, poliomyelitis and venereal diseases; (2) the direction of tuberculosis camps and clinics; (3) the administration of diphtheria antitoxin and intubation; (4) the direction of the diagnosis laboratory and collection of specimens throughout the city.

The administration of diphtheria antitoxin for curative and prophylactic purposes and the practice of intubation have been maintained since 1895. In 1911, 6,167 patients were injected with antitoxin. Tuberculosis is reportable and the registration and supervision of this disease are facilitated by a system of health department clinics for tuberculous patients. In these tuberculosis dispensaries a total of 28,570 persons received treatment in 1911, of whom 16,562 were new cases. In 1906 an original and effective line of work was begun by fitting out an abandoned ferry-boat as a day-camp for tuberculous patients living at home. This work has since been extended to include two other camps under the department and several connected with hospitals. In these camps a hot dinner is provided at noon, and lunches of milk and eggs in the morning and afternoon. Open air classes are conducted for the children, the equipment being provided by the Department of Education. The Department of Health conducts a tuberculosis sanatorium at Otisville, N. Y., for admission to which there is always a long waiting list.

The sanitary supervision of typhoid includes the investigation of all cases by inspectors, who visit both the patient and his physician, more complete reports from the physician on the termination of the disease and a thorough investigation of the possible sources of infection in each case, whether by contact or through the food-supply. Pin-maps of each borough show any unusual grouping of cases and may point out the source of infection. Also a tabulated record is kept of the date of onset and milk-supply in each case. The division is prepared to make prophylactic typhoid vaccinations on request or in local epidemics, and it is expected that in the near future removal to hospital will be required when conditions at home preclude proper preventive measures. In 1911, 3,686 cases of typhoid were reported and 13,521 inspections were made.

A similar and even more rigid supervision is maintained in cerebrospinal meningitis and anterior poliomyelitis. Reports are required of all cases of malaria, pneumonia, erysipelas, abortion and puerperal septicemia, but patients are not visited. Cases of malaria reported are investigated to determine the validity of the diagnosis and whether it is supported by laboratory findings. Reports of venereal disease have only recently (1912) been required. These reports are filed but are not open to the public. The laboratory will soon be prepared to make all examinations requisite in connection with these diseases. The work of the diagnosis laboratory in 1911 included 40,048 sputum examinations, 68,868 throat cultures, 10,549 examinations of typhoid blood, 2,376 of malarial blood, 2,926 of typhoid urine, besides numerous examinations of pus and spinal fluid specimens and miscellaneous preparations.

MINERAL SPRINGS AND THE NEW ELEMENT, NITON

In an article on the new element, niton, the so-called "radium emanation" of Rutherford, Dr. L. K. Hirshberg, of Johns Hopkins, states (*Scientific American,* April 20, 1912) that "until Sir William Osler came along with scathing nihilistic words, and rid the scientific world of the delusion that the waters of lithia springs, sulphur springs, Vichy springs, Carlsbad, and other watering places had the marvelous power of curing joint troubles, blood and constitutional diseases, there was hardly a physician in the civilized world who was not convinced of the therapeutic powers of the particular waters of some particular spring to which he sent his patients." But unfortunately for Osler's nihilistic views, and fortunately for science, Monsieur and Madame Curie discovered radium, while subsequently other great workers in physical chemistry, including Thomson, Ramsay, Crookes, and Rutherford, found traces of radium in the waters of many mineral springs. Then followed the discovery by Sir William Ramsay, not only of the fact that the wonderful properties of radium were due to the gas niton, of which it contains seventy-five per cent, but also that the curative value of the spring at Bath, England, was due to the niton its waters contained.

We are thus furnished with an explanation for a phenomenon which has given rise to considerable speculation, viz., the fact that mineral waters that are prepared artificially, even though the formula of the bona fide spring is reproduced qualitatively and quantitatively with the utmost care, fail to produce the same effects as the waters of the original spring, especially when used at the spring itself. Even the greater activity of freshly drawn waters may find its explanation in the fact that while niton, like helium and argon, is practically inert and forms no chemical salts or other compounds, its existence is but temporary, lasting a little less than four days—3.86 days, to be exact—when it becomes transformed into something new. Whether this change actually occurs in mineral waters, however, we are not told.

Sir William Ramsay has further shown that, as is the case with other gases, niton is compressible, a simple compression at room temperature sufficing to convert it into a liquid. Moreover, when this liquid is pressed into a silica glass tube having a very fine bore, it becomes solidified into a microscopical rod of transparent, ice-like material. Though its transparency renders it invisible, it emits a light as brilliant as that of an arc lamp, and in the dark is most beautiful. But it steadily breaks down in geometrical ratio, possibly, in Professor Rutherford's opinion, into new elements. Be this as it may, the fact remains that it is now known that a "powerful spray of tonic electrones" underlies the therapeutic action of at least certain mineral waters, and also that another of Osler's nihilistic doctrines is being rudely shaken.

THE SECRET OF THE BIG TREES

In the days of the Prophet Elijah sore famine afflicted the land of Palestine. No rain fell, the brooks ran dry, and dire distress prevailed. "Go through the land," said King Ahab to the Prophet Obadiah, "unto all the fountains of water and unto all the brooks: peradventure we may find grass and save the horses and the mules alive, that we lose not all the beasts." When Obadiah went forth in search of forage he fell in with his chief, Elijah, and brought him to Ahab, who greeted him as the troubler of Israel. Then Elijah prayed for rain, according to the Bible story, and the famine was stayed. From this famine in Palestine, some 870 years before Christ, to the forests of the Sierra Nevadas, in the twentieth century, is a far cry, but the connecting link between the past and the present, between the ancient East and the modern West, is found in the big trees of California, the huge species known as Sequoia Washingtoniana.

In a publication entitled "The Secret of the Big Trees," by Ellsworth Huntington, it is shown that the growth rings in the big trees of California indicate that in general the same sequence of climatic changes took place in California and Asia Minor. Curves indicating climatic conditions in California and Asia Minor show a remarkable resemblance between the two regions. The curves begin with the epoch of the Trojan War, about 1200 B.C. There both curves dip very low, indicating an epoch of sudden and sever desiccation. That particular period, historians tell us, was one of the most chaotic in all history.

The famine in the days of Elijah appears in both curves. Apparently at that time the climate did not become extremely dry, nothing like so bad as it had been a few hundred years earlier during the twelfth century, but there was rather a distinct falling off in the amount of rainfall as compared with the uncommonly good conditions of the preceding century. About seven hundred years before Christ both curves stand high in the day when the Greeks were laying the foundation of their future greatness and the empires of Mesopotamia were at their height. Then comes a pronounced falling off, with a recovery three or four hundred years before Christ, another decline culminating about 200 B.C., and a recovery reaching a high point about 50 B.C. The time of Christ, the great era of universal peace under the sway of Rome, was apparently an epoch of favorable climate, a time of abundant rain and consequent good crops in all the countries around the Mediterranean Sea and eastward in Asia, as well as in California. Next comes a long period of decline culminating six or seven centuries after the time of Christ. No period in all history, save that which centers about 1200 B.C., was more chaotic; and that early period also appears to have been a time of greatly diminished rainfall.

PASTEURIZED MILK

In order to determine the best way of pasteurizing milk so as to kill the disease germs and yet not give the milk a cooked flavor or lesson its nutritive value, the Department of Agriculture, through its Dairy Division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145° F. for thirty minutes the chemical changes are so slight that it is unlikely that the protein (muscle building element) or the phosphates of lime and magnesia are rendered less digestible than they are in raw milk.

Moreover, from a bacteriological standpoint, pasteurizing at low temperatures is found to be more satisfactory than pasteurizing at high temperatures. According to Bulletins 126 and 161, where low temperatures are used the majority of bacteria that survive are lactic acid organisms which play an important part in the normal souring of milk. When milk is efficiently pasteurized at high temperatures, the bacteria which survive are largely of the putrefactive kinds, and milk so treated if kept for any length of time has a tendency to rot instead of sour. From the standpoint of economy, the technologist of the Dairy Division finds that pasteuring at low temperatures calls for less heat. It is found that it takes about 23½ per cent. less heat to raise milk to the temperature of 145° F. than to a temperature of 165° F. A similar gain is a saving of the ice needed, because it will require 23½ per cent. more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature. The Department, therefore, recommends that "When market milk is pasteurized it should be heated to about 145° F. and held at that temperature for 30 minutes."

SCHOOL FOR HEALTH OFFICERS, CONDUCTED BY HARVARD UNIVERSITY AND THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Beginning this fall Harvard University and the Massachusetts Institute of Technology are to maintain in coöperation a School for Public Health Officers. The facilities of both institutions are to be available to students in the school and the certificate of public health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The object of this school is to prepare young men for public health work, especially, to fit them to occupy administrative and executive positions such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health. To this end, the instruction of the new school will be on the broadest lines. It will be given by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, state, and local health agencies.

The requirements for admission are such that graduates of colleges, or technical and scientific schools, who have received adequate instruction in physics, chemistry, biology, and French or German, may be admitted to the school. The medical degree is not in any way a pre-requisite for admission, although the Administrative Board strongly urges men who intend to specialize in public health work to take the degree of M.D. before they become members of the school for health officers.

The Administrative Board which will conduct the new school is composed of Professor William T. Sedgwick, of the Massachusetts

Institute of Technology; Professor Milton J. Rosenau, of Harvard; and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard has the title of Director, and the work of the school will be under his immediate supervision.

BATHS IN LONDON

The recent revelation that a certain parish in Notting Hill possesses only one bath to its 6,000 inhabitants has led to the discovery that there are other districts of London where bathing facilities are conspicuous by their absence.

Thus, in the Borough of Bermondsey, with 19,000 houses and a population of 130,000, only 121 houses are fitted with bathrooms, and most of these are in drinking saloons. The medical officer of health for Poplar, another thickly populated district, jocularly declares that he "never heard of such a thing as a bath" in his borough, while the Borough of Stepney is no better off.

In many instances where enlightened landlords have installed baths in the homes of the working classes they have been looked upon by the tenants in the light of lamentable waste of space. A Lambeth Borough Councillor states that in forty houses erected for the use of workingmen an inspection showed that in only six houses were the baths used for purposes of ablution. In every other case the bathroom was utilized as a coalhouse or for the reception of rubbish and lumber. There were even cases in which the baths were used as homes for ducks or rabbits.

A NEW SUPPLY OF RADIUM

C. L. Parsons, *Journal of Industrial and Engineering Chemistry*, May, 1913, informs us that the United States leads the world in the possession of radium bearing ores. Ores were mined in this country, 1912, which contained more than twice the quantity produced in the rest of the world. Still more surprising is it to learn that no radium was taken from this ore; part of it, the low-grade ore, was thrown on the dump, leading to an absolute loss of the precious substance, while the high grade ore was shipped abroad and part of the extracted radium returned to this country and sold at a very high price, while the remainder remains in Europe to be used for scientific study and for therapeutical purposes.

It will occur to all scientific men, including physicians, that the Government should at once take possession of these valuable mines in order to control the output for the benefit of its citizens, and by careful management reduce the price, which is now almost prohibitive.

THE ACADEMIC COSTUME

Parti-colored academic costumes, with their bright and startling combinations, exemplify, in the belief of Prof. Burt G. Wilder, of Cornell, the "survival of simian proclivities in the human race"; that is, they make the professors who wear them look like monkeys—nay, they indicate Yahoo-like propensities still waking in the professorial bosoms. Discussing the gay trickeries of the academic costume in *Science* of January 31, Prof. Wilder condemns as not good the analogy of the noble company of educators as a "standing army" in conflict with ignorance, and therefore uniformed in colors. He says:

"Farmers combat the hunger in the community; physicians, disease; lawyers, misapprehension, injustice, and crime; clergymen, the ape, bull, and tiger in man; and all good citizens are in constant warfare with the undesirable elements of society; but these groups do not proclaim themselves by needless, conspicuous, and costly pharisaic habilments."

COCAINE HABIT IN PARIS

A report from Paris describes the rapid growth of the cocaine habit among all classes of society in that city. The drug is distributed largely in cafés, where surreptitious and illicit traffic in it is maintained. Some of the more wealthy habitués are alleged to pay as much as forty francs a gram for the drug, submitting to this extortion from dealers who threaten to expose them and cut off their supply. The police are said to be engaged in a vigorous effort to suppress such clandestine sales.

Misery is not inevitable; misery has stood only because of our ignorance or indifference, and the time has now come—in this day of recognition of brotherhood, this day of recognition of democracy, this day of science—to bring us the true, the perfect liberty of man, wherein each may live in full development and in full justice to others.

THE SABBATH DAY

A perpetual Sabbath is being celebrated on earth. This is not generally known, for most people think that the day they call Sunday is the only one celebrated. The Greeks observe Monday; the Persians, Tuesday; the Assyrians, Wednesday; the Egyptians, Thursday; the Turks, Friday; the Hebrews and several Christian sects, Saturday, and the Christians, Sunday. So, really, it is Sabbath every day to some one on earth.

BOOK REVIEWS

The Plant Alkaloids. By Thomas Anderson Henry, D.Sc (Lond.), F.C.S., Superintendent of Laboratories, Scientific and Technical Department, Imperial Institute. Philadelphia: P. Blakiston's Sons & Co., 1913. Price $5.00 net.

This work comes as a relief in this age of chemical synthesis, for while it is true that synthetic chemistry has brought us many very valuable therapeutic agents within the last two decades, it should not be forgotten that the active principles of many plants have provided us with equally definite agents for the treatment of diseases. The difficulties formerly found in determining the origin and function of plants has been largely overcome; their constitution and physiological relations to their effects on animal life have been largely determined through analysis, the microscope and animal experiment. This work has led to a more intelligent use of the alkaloids in clinical medicine. And while much remains yet to determine, it can be safely predicted that success will follow further study. It is a long stretch from the early empirical use of plants or simples in the treatment of the various complaints and conditions encountered by our ancestors, and yet until very recent times they together with a few inorganic preparations were the sole agents at their command in treatment. From the uncertainty of the systemic effects of plants mostly made into decoctions and infusions under such varying conditions of preservation and manipulation to the accuracy of dosage and effects of properly prepared and tested alkaloids adopted to pathological conditions is also a wide stretch.

This voluminous work of Dr. Henry is the work of the chemist rather than the clinician, and as such will be found of great value to the physiological chemist and the manufacturer. It covers a study of the chemical identification of alkaloids of plants and animals, which are so closely related, and so completely covers the known field that it must certainly be considered authoritative and up to date.

Applied Pathology, Being a Guide to the Application of Modern Pathological Methods to Diagnosis and Treatment. By Julius M. Bernstein, M.B. (Lond.), D.P.H. (Camb.), M.R.C.P., Asst. Physician (Late Pathologist) to the West London Hospital; Lecturer in Clinical Pathology to the Postgraduate College; Lecturer in Bacteriology to the Westminster Hospital School, etc. Illustrated with five colored Plates and forty-six Drawings. London and New York: University of London Press, 1913. Price $3.75.

This is one of the list of London Medical Publications, and as such will command close study and wide reading. It is a work written for the practitioner in a thoroughly comprehensible manner. No attempt is made to produce a laboratory manual, nor is technic dealt with save that appertaining to the collection of specimens. It will be found of practical value to the busy practitioner and senior student. There are twenty-nine chapters covering the blood, leukemia, anemia, serology, bacteriotherapy, serumtherapy, cytology, the urine, disorders of digestion, the feces, sputum, pleural effusion, infective conditions of the skin, tuberculin and an interesting chapter on chemotherapy. There is also a chapter on complement fixation method of diagnosis, including the Wassermann and other reactions.

Our author declares in the chapter on vaccinetherapy that stock vaccines consist of bacterial preparations of known organisms, such as the staphylococcus, the bacillus coli, the bacillus typhosus, etc.; that often an organism is found in so many different forms and in so many different stages of virulence that an autogenous vaccine is the most suitable for the patient. When an autogenous vaccine, however, cannot be obtained, it is advisable to use a stock vaccine. He also declares that the administrative method of preference is subcutaneous. Much could be written of this valuable work were space at our command, but it must suffice that it is clearly up to date and worthy of wide study. It is free of unnecessary technical descriptions and therefore easily comprehended, and this is a matter of great importance to the busy general practitioner.

Malaria: Etiology, Pathology, Diagnosis, Prophylaxis and Treatment. By GRAHAM E. HENSON, M.D., with an Introduction by Charles C. Bass, M.D. Twenty-seven Illustrations. St. Louis: C. V. Mosby Company, 1913. Price $2.50.

All medical men are agreed that malaria has been one of the most serious of problems which they have been called upon to treat, not alone in tropical countries, but in other latitudes as well. From Texas to Minnesota and Wisconsin, and from North Carolina and Maryland to Washington and Oregon it has claimed its tribute of thousands of lives. Like typhoid, it is a preventable and curable disease, and yet like typhoid it prevails extensively as an epidemic for no other reason than the indifference of our state and municipal authorities. One has only to read of what has been done in the Panama Canal Zone to realize what intelligent effort can accomplish. Here is a book of some two hundred pages devoted solely to malaria. All of the work is interesting and instructive, but the chapters devoted to diagnosis and treatment will be found most helpful. The author shows the fallacy of the haphazard fashion of treating malaria so much in evidence. The complications and prognosis clearly prove the need for prompt and intelligent treatment, which is clearly set forth in this work. We heartily commend the work.

General Medicine. Vol. I of Practical Medicine Series, 1913.
General Surgery. Vol. II of Practical Medicine Series, 1913.
Eye, Ear, Nose, Throat. Vol. III of Practical Medicine Series, 1913.
Gynecology. Vol. IV of Practical Medicine Series, 1913.
Pediatrics, Orthopedic Surgery. Vol. V of Practical Medicine Series, 1913.

These volumes of Practical Medicine Series for 1913, published by The Year Book Publishers, Chicago, ten of which complete the series for the year, are issued at intervals approximately each month. They are epitomes of current literature pertaining to the specialties and are edited by men eminent in the several branches, so that the series gives briefly all that is new occurring during the year. They are especially valuable to the busy practitioner.

Chloride of Lime in Sanitation. By ALBERT H. HOOKER, Technical Director Hooker Electrochemical Company. New York: John Wiley & Sons, 1913.

We consider that we are doing the physician, the sanitarian and intelligent people generally a great service in calling their attention to this valuable book. Here is the most efficient as well as the cheapest of disinfectants. The information as to methods of procedure in applying chloride of lime in sewage disinfection by the sanitarian; for water purification; street sprinkling; its many uses on the farm; in the warfare against the housefly, and its application in epidemics, in surgical procedures, around the home, etc., will be found not only clearly set forth for the scientist, but in language easily understood by the layman. It should be in every household.

The Abstracts and References will be read with interest and profit.

PAMPHLETS AND REPRINTS

SEWAGE POLLUTION OF INTERSTATE AND INTERNATIONAL WATERS. With Special Reference to the Spread of Typhoid Fever. By ALLEN J. MCLAUGHLIN, Government Printing Office, Washington, 1913.

OUTBREAK AND SUPPRESSION OF PLAGUE IN PORTO RICO. By RICHARD H. CREEL, Passed Asst. Surgeon, U. S. Public Health Service. Government Printing Office, Washington, 1913.

THYMOL ADMINISTRATION. By CH. WARDELL STILES and HAL. F. BOATWRIGHT. U. S. Public Health Service. Government Printing Office, Washington, 1913.

AN INVESTIGATION OF THE PREVALENCE OF TRACHOMA IN THE STATE OF MINNESOTA. By TALIAFERRO CLARK, Surgeon U. S. Public Health Service. Government Printing Office, Washington, 1913.

THE RAT, A SANITARY MENACE AND AN ECONOMIC BURDEN. By R. H. CREEL, Passed Asst. Surgeon, U. S. Public Health Service. Government Printing Office, Washington, 1913.

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ORIGINAL ARTICLES

WATER SUPPLIES

By T. W. Starkey, M.B., Lond.
Montreal

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In an exposition of the general principles of water supplies, we must commence at the very beginning or source whence all water is obtained, rain and snow.

As the rain falls upon the earth it is disposed of in a threefold manner. It partly evaporates, partly percolates, and partly runs off the surface. A consideration of the first part, that which evaporates, may be dismissed immediately, as not being pertinent to the subject in hand. The second part, that which percolates, sinks into the soil and ultimately gives rise to all our wells and springs. The third part, that which runs off the surface, goes to form our streams, rivers and lakes.

I deem it important to mention these plain facts because by following the rain to its ultimate conditions a clear concept is gained of the pollutions to which this rainwater in its various sources is liable. The water which percolates the ground will be first dealt with, because this matter can be dismissed in a few words. When the rain falls upon the earth it at once sinks through the permeable soil, down, down, down until it reaches a layer through which it cannot pass. This is known as an impermeable layer, and is generally composed of clay or very hard rock. I would remind you of the general formation of the earth's crust, the stratification or alternation of layers, some permeable, some impermeable, all of varying thickness.

Now, in the first or most superficial layer the rainwater is held up, so to speak, by the first impermeable layer. As a rule, this superficial underground water is very near the surface, and it is from this body of water that all our ordinary farmyard wells are supplied. The distance through the soil this water has to travel before it reaches the first impenetrable layer is short, and in its passage it is ever ready to pick up any contamination which may lie directly upon the surface of the earth or at some little distance beneath the surface. These facts will lead to a better appreciation of the reasons why our ordinary wells are so often badly polluted.

The rainwater which travels deeply through the soil, a question of miles, undergoes tremendous natural filtration. In most instances this filtration is the most thorough which could be devised, and man's greatest ingenuity in this direction sinks into insignificance when contrasted with the vast filtering process which nature affords.

Sometimes, however, nature's scheme breaks down, for it occasionally happens that the deep, impermeable layer through which the water percolates does not consist of fine soil, but of chalk, wherein we are likely to find a regular network of fissures, freely communicating. In such circumstances the water, having gained admission to these fissures, is not subjected to so thorough a filtration, but simply runs through the fissures, just as if it were running through pipes. This deep water may become contaminated and remain so, from some superficial polluting area. Speaking broadly, deep underground water is a very pure water from the bacteriological standpoint.

Before leaving this part of the subject it would be as well to contrast these deep with the superficial waters. The latter once contaminated by germs have no chance to free themselves, as they do not traverse miles of nature's filter. I will endeavor to explain at length the menace of superficial well waters, which are subject to possible contamination.

With regard to surface water, the character of the ground upon which the rain falls is of prime importance, because upon this depends the character of the water as it runs off the surface. We can eliminate the ground immediately surrounding cities and towns and go farther afield to those parts where habitations are either absent or scarce. Such tracts of land are usually at a high level and referred to as upland surfaces, and the water therefrom is upland surface water. In an ordinary way, the ground is either rocky or covered with vegetation or a combination of the two.

In the case of bare, rocky ground, the rain has very little opportunity for dissolving anything, and consequently runs off in a condition of great purity. Where much vegetation exists the rainwater dissolves vegetable matter, which imparts a brownish color to the water, according to the amount dissolved. In these cases the water which runs off the earth's surface is either impounded, forming lakes, or small streams, which, ultimately joining, gives rise to rivers. Lake water derived from upland surfaces is generally at first of a pure type.

In coming to a conclusion as to the fitness of any water for drinking purposes, we must always be on the lookout for contaminating sources whence dangerous germs might gain access. Such contamination is always associated with human habitations and derived therefrom. In the instance, then, of lake waters on upland surfaces with few houses around, the chances of dangerous germs gaining access seem very remote. Unfortunately, when we get away from theory and come down to actual facts, we find the maintenance of the purity of these waters to be almost impossible. This difficulty will be recognized when I point out the vast area of ground which constitutes the catchment surface for such a lake. It induces the natural drainage of that particular region, and the lake being fed by small streams or brooks, it will be seen how far reaching the possibilities of contamination may be. Some of these brooks meander along for several miles to the lake, gathering on their way any polluting material which may chance to come in their path. Again, during periods of drought these brooks frequently dry up completely, or become almost imperceptible, hence they very often escape notice altogether. But it must not be forgotten that when the next rain falls the beds of these brooks, together with any contaminating matter which may be in their vicinity, are flushed by the rain water, and any dangerous germs present will be washed down to the lake. Indeed, I do not know of any more fruitful sources of danger when dealing with surface waters than these selfsame tiny streams or brooks.

The attitude of the average man toward these small, unnoticeable pollutions is quite comprehensible. They are so small as not to affect the quality of the water, when judged by the senses of sight, smell and taste. Again, it should be borne in mind that it is only when dangerous infectious germs, like those of typhoid or cholera, for example, are present in the polluting material that disease results from the consumption of that water. According to my experience, this is the most difficult feature of the situation. The average man cannot be convinced that such a situation is fraught with endless possibilities of danger to health. The general attitude seems to be that what was good enough for former generations is good enough for the present. But at some time the dangerous germs are swept down into the lake and the people are rudely awakened by an explosion of disease. The public in such circumstances are only too anxious to take the necessary preventive measures against a recurrence, but it is a case of "locking the stable door after the horse has bolted."

Now with regard to rivers. Considering their origin in small upland surface streams, their long course down to the sea, and the fact that at the same time rivers are the natural drains of the countryside, it is obvious that the character of these waters will differ radically from lake waters, both as to salts dissolved from the ground and also with respect to the opportunities for collecting polluting materials. In the disposal of all liquid refuse, whether purified or crude, we must eventually avail ourselves of the natural drains or rivers. Where we have to deal with large rivers, the volume of water is so great and the dilution of sewage commensurate with the volume, that pollution is not noticeable by the ordinary senses. But it is only a question of degree, and the common experience of the world has been that in course of time, when population grew, the sewage poured into rivers made itself evident to the senses. When this stage has been reached the people have at all times relinquished such a source for drinking purposes and have gone farther afield. All the old nations have gone through this experience, and coming to this continent, we find the very same thing happening along the Eastern seaboard, where the rivers have been allowed to become so badly polluted as to be absolutely unfit for drinking, although every germ therein were taken out and killed. This has been the result of allowing crude sewage to flow into rivers. The question then arises, what about purified sewage effluents? Sewage can be, and is, in many instances, purified to such an extent that the effluent is clear, nonputrescible, and approaching very nearly to the character of good river water, but it usually contains germs in fairly large numbers. However, when mixed with clear river water, it shows no signs of pollution to the senses.

We now come to the consideration of small pollutions, and their influence upon the river water into which they enter. Being absolutely undetectable by the senses, these contaminations frequently pass muster, and are regarded as of no account.

Another difficulty in the nature of a popular prejudice here confronts us. Some years ago, before the era of bacteriology, it was asserted by chemists that in the case of small pollutions, running water was capable of purifying itself. This statement was and is quite true, so far as it goes, but it refers only to the chemical side of the question. Dead organic matter, the large constituent of sewage, is gradually oxidized and disappears as such, but this process does not apply to living matter, as germs. The statement, then, that running water purifies itself is only half the truth.

The ancients were alive to the menace of small pollutions, but they had no chemical or bacteriological standards to guide them. They gained their knowledge by bitter experience. Vitellius tells us that the authorities in his day relied upon the crude test of trying the water, exactly upon the same principle as Punch's recommendation for distinguishing between a mushroom and a toadstool, "if it kills you it's a toadstool, if it doesn't it's a mushroom."

I have traced in a very brief fashion the gradual but sure contamination of our rivers and streams. This influence is always at work, and accounts for the efforts put forth by various nations throughout the ages to procure safe water. The sources of supply near at hand have always become polluted until dangerous, then a more further afield in search of pure water has always taken place. This method has been repeated time after time. The first step was taken by England in 1629, followed shortly after by Paris, and so matters moved slowly until 1829, when the great discovery of the sand-bed filter was made. I trust I have shown that little reliance can be placed on natural rain waters, lake or river, on account of the dangers of pollution to which both are liable, and explained why I take so firm a stand against the use of raw water. I do not think the public get proper treatment when a system, providing for the supply of such water, is foisted upon them. Further, I maintain that it is the duty of all authorities, when providing communities with drinking water, to look a little ahead. I maintain that they have no right to embark upon a scheme to provide raw water, however good it may appear at the time, because of these insidious pollutions, upon which I have previously dwelt. I have seen so many instances, all ending in the same disastrous manner, after a longer or shorter interval.

These are the main lessons I have been endeavoring to enforce: 1. Keep rivers and lakes as pure as possible by means of sewage purification, and 2. The installation of some known method of water purification which will insure good results.

THE HEALTH AUTHORITIES' WORK IN THE HOME*

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In the gradual evolution of hygiene as a science there has followed, from time to time, the assumption, by the state, of the control, if not actual solution, of many problems which, from their initiation, had been operated by voluntary social workers. And local boards of health are now, in many instances, systematically doing, through qualified officials, work that was formerly carried on at the expense of philanthropy. Wherever this is now the case, it can be claimed in Canada at least that the results have been highly satisfactory.

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*Read before Conference of Infant Mortality in London, August 4 and 5, 1913.

Perhaps the most striking example has been in the antituberculosis work, where the philanthropist was moved to activity and carried on work in different places long before the government or municipal authorities even manifested interest. Gradually, however, both federal, provincial and municipal authorities have become linked up, and it is quite apparent that this hitherto sociological movement will become as much a part of routine health work as the care of communicable diseases, the prevention of nuisances and the inspection of plumbing. The results already attained, where the work has been carried on as a function of the local health authorities, has demonstrated that the efforts of philanthropy have not been thwarted, or checked, but, through cooperation with an authority vested with powers of action, they have accomplished much that was not formerly possible. This is evidenced in better home environment and hygienic methods of living amongst those coming within the sphere of the work.

It is regrettable that in things sanitary our governments are not always wise enough to profit by the mistakes of other countries. If the pioneer days are over in Agriculture, it is not so in the matter of "the homes and the babies," for, in many respects, we are following along lines which in older countries have led to death and physical impairment. As regards housing, we can show conditions which would not be permitted anywhere in the British Isles. Whatever good is being accomplished and whatever public opinion has been aroused is due chiefly to philanthropic workers. With us the evolution is gradual, for, in the rush to get rich, but few of those sailing on the tide of prosperity care little, heed less, the wail of the suffering infants. What are a few thousand Canadian babies compared to thousands of good husky foreigners who will dig and delve while we make the money? In all seriousness I say it, there are slaves to-day who work harder and live in less sanitary environment than did the colored slave; and there are white babies in Canade who, through no fault of their own, have less chance to survive the perils of home environment than they would if born in other climes. This is due, mainly, because health authorities have not been empowered to carry on their work inside the home.

If one may judge from the amount of money spent it would appear that the federal government has shown, up to the present time, a greater appreciation of agriculture, immigration and the maintenance of a militia than it has of the care of its people. Canada has spent since Confederation some 80 million dollars for militia and defense, 16 million for immigration and 15 million for agriculture, while not a dollar has been directly spent along lines having for their object the saving of the lives of our infant population. It is argued by some politicians that this is a question solely within the jurisdiction of the several provinces, but that which concerns our most valuable asset is and must be worthy of some national effort, particularly when that same government has assumed the duty of the provinces in the oversight of live stock. The method adopted, as well as the money spent, for this work has been good for the farmers' hog and the pigpen, but surely the infant is worth more and is more worthy of consideration and protection! The ennobling of Canadian motherhood, the fostering of parentalism, spells greater wealth to the young country and to the nation than many of the gewgaws with which the politicians hypnotize the people.

Few, if any, realize the great possibilities which lie before the sanitarian in the home, which field of work is as yet almost untouched. The hidden wealth contained within the cubical contents of what under modern housing conditions we are pleased to designate "a home" cannot be overestimated, especially when we consider all that "a healthy home" means to a nation.

The subject is presented for the purpose of directing the attention of governments and municipalities to the inestimable benefits which will accrue if they will avail themselves of the opportunity afforded by health departments to prevent the present unnecessary waste in infant and child life. In the marked activity found on every hand amongst social workers, the fact is apt to be overlooked that their work, in the main, is really a function that should be discharged by health authorities. The maintenance of health conditions as they relate to the individual and his general environment are recognized parts of health work. The widespread activities of philanthropy in all that relates to the child are sufficient to indicate the need for some systematic work being undertaken by state and municipal health authorities.

As this paper is necessarily short, only one phase of this work will be considered here, viz., the baby and the home.

THE BABY AND THE HOME

The baby potentially represents the wealth of the nation.

Approximately 35,000 infants under five years of age die in Canada annually, of which number 25,000 are babies who have not reached their first year.

This national loss is due,

(a) mainly to ignorance,
(b) largely to environment,
(c) partially to penury,
(d) occasionally to criminal neglect.

The work at present is in the main philanthropic.

Through failure on the part of governments and municipalities to inaugurate and systematically carry on preventive measures, this national waste of child life has not been prevented.

Health work in the main has been extrinsic as concerns the home; hereafter it should be intrinsic.

The achievements of philanthropy have clearly demonstrated the beneficial results that can be obtained through the adoption of scientific and rational preventive measures, and have already conserved many valuable lives to the state.

The state has already assumed the oversight of the care of the child upon its reaching the school age, and has taken upon itself, or placed upon the municipal authorities, the care and treatment of those then found to be defective or diseased.

The state has, in some instances, provided for the medical attendance, sick insurance and pensions of its citizens in the later years of life—all of which measures have a direct bearing upon the physical condition of the people. The state and municipalities have yet to cover the most important part of the field of preventive medicine, the one big with import to the nation.

Whatever is most essential for preventing the great waste of infant life should be adopted as a system by the state and carried out under the direction of the health authorities, thereby permitting of its greatest use and of its uniform and routine application.

The health departments, now vested with power of entrance into the home, should be officered and equipped so that "the child" can be cared for and nurtured through the years most likely to secure the best results. By beginning the work of hygiene at and before birth, many, if not most, of the defects and permanent disabilities which the state is now striving to cure at great cost through the agency of the medical inspection of school children will be prevented.

The health department is that most suited to efficiently and economically coordinate whatever philanthropic work may be found suited to the peculiar wants of each municipality.

It is now the function of state and municipal health departments to adopt and carry out many of the measures essential in the conservation of child life, such as:

(1) The inspection of the home—"the hygiene of the home";
(2) The education of the people in everything appertaining to the life and health of "the baby," "the child," as well as "the mother" and "the father," no matter whether this education be theoretical or practical or through executive agencies;
(3) The betterment and maintenance of environment, both within as well as without the home;
(4) The oversight of institutions having for their object the care of infants.

The care of infants, both legitimate and illegitimate, is essentially a matter for state and municipal health authorities, though many problems connected with the child and of the mother are of such national import that they should no longer be dealt with altogether upon lines of charity, as has been the custom in the past.

The time has arrived that their lives are so precious, while the magnitude of the work is such as to command from governments and municipal authorities their serious attention, that it is more paramount than the building of navies and the training and equipment of armies for defense. To accomplish the objects we have at heart means the expenditure of money, as the work cannot be begun or operated without cost. When once instituted under state and municipal legislation and aid, the results will be so great and manifest that the nation or people which engages in the hygiene of the child will not turn back, but will go on to better and higher things.

The possible lines of operation may be considered as either state or municipal. As the former is the power which is supposed to legislate for the good of all, and as there are some portions of health work which can be best instituted and carried out by the greater body, so it is in the case before us. The state can by legislation bring into operation and by proper supervision coordinate the many and diverse channels along which health authorities could work and at the same time cooperate with those desiring to assist along the lines of philanthropy. The state is the one authority best fitted to institute some system of insurance whereby material assistance will be assured to mothers and their offspring, and it might properly lend financial aid to the institutional portion of the work.

The local boards of health should extend their work directly into the home and maintain for this purpose an efficient staff of medical and lay officers, whose duty it would be to inspect and report upon the physical condition of the inmates, as well as the sanitary state of the cubical contents of all homes, and at the same time render such sanitary aid as may be found necessary.

In addition to this health work in the home, it is equally essential that local health authorities be charged with:

The supervision and instruction of mothers on the care of babies;
The establishment and operation of milk stations;
The supervision and control of midwives;
The supervision and control of all institutional work having for its object the care of the infant and child;
The regulation and oversight of child labor;
The oversight and regulation of all industrial work carried on within the home.

It may be contended that this important sanitary invasion usurps the sanctity of the home, but, under modern conditions, truly no man or woman lives to himself or herself, and the nation has a right to protect the life and prevent disease and disability amongst those constituting its most valuable asset.

It is also the duty of the state to provide or assist in providing for the oversight and, in many cases, the care of the infant, more so than it is now its function to control the education of the child, or maintain an oversight of the factories and workshops in which a portion of our adult population spend about eight hours every working day. The perpetuity and prosperity of a nation, as well as its morale, depends upon the physical standard of its people, coupled with the high standard of home environment, and this can be best secured by beginning with the care of babies in the homes in which they are cradled and many improperly provided for in prenatal days, as indeed from birth until they reach the school age.

Let health authorities but enter the homes of our people in the proper manner and by means of competent officers vested with authority and backed with the machinery necessary for this, the highest of all preventive work, there will be saved to the nation an army of children, there will be such a moral and social uplift, that we will wonder why this as yet untrodden field of health work was not entered into long ago.

THE RELATION OF THE GENERAL PRACTITIONER TO THE PUBLIC SCHOOL*

By Ira S. Wile, M.S., M.D.
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Despite the fact that the present age seems to be moving along lines of progress leading towards specialism, the general practitioner still retains an honored place among the world's necessary servants. In a large municipality the bulk of the medical work is done by the general practitioners and not by those devoted to special branches of medicine or surgery. A large number of the general practitioners are attempting specific forms of work for their own instruction and experience in hospitals and clinics, while in their private practice they maintain a general oversight of men, women and children in accordance with the original function of the old type family physician.

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*Read before the section on Neurology and Psychistry of the New York Academy of Medicine, May 13, 1913.

The relation of the general practitioners to the public schools is of far more importance than is generally appreciated. The number of children who are in our elementary schools could be very greatly increased were adequate attention given to the medical problems of infancy and early childhood. The direct relation of the physician to the educational system is evidenced in the fact that from infancy to school age the children are largely under the guidance and direction of general practitioners, serving as family physicians. While much stress has been placed upon infant mortality, it is scarcely realized that the large morbidity during infancy, leading to weakened constitutions or disturbances, such as rickets, scurvy and allied disorders, has a pronounced effect in lessening the physical and mental powers during childhood. So the first direct relation of the general practitioner to the public schools should be stated as the preparation of children for school work by attention to their physical welfare.

If this function were properly carried out, there would be fewer children entering our public schools with the marked physical defects of vision, hearing and speech. Pathologically enlarged tonsils and adenoids would be noted less frequently. Teeth would show less decay; spines would evidence fewer abnormal curvatures; pediculosis and scabies would be less common. The possibilities of retarded mentality could be known when the child first goes to school. The physician as a medical counsel and guide should be the early agent in recognizing backwardness and defectiveness. He should be able to point out the necessity and importance of attention to speech defects and suggest the methods of correction. To supervise and direct the special care necessary for the so-called nervous children is of especial importance. Backward children should be sent to school. One so frequently hears the statement that the physician has advised waiting until the child is seven years old or ten years old because some defect which has attracted the attention of the parents probably will have disappeared by that time. Such counsel is dangerous, misleading, and robs the child of its merited opportunity for proper development under the direction of willing and anxious parents.

The preservation of the health of children in the preschool age is a matter of immense economic importance and should receive commensurate attention from the general practitioner, who is virtually a sanitary health officer as well as the medical supervisor for the various families who come under his observation and medical care. The bulk of the preventive work which is so essential for the proper preparation of children for schooling lies within the province of the general practitioner. If at the present time there be criticisms because of the large number of children who come to school with defects of one type or another, we may partly attribute this to the decreased support which the general practitioners are receiving while specialists have developed who cannot see beyond their own realms of action. All the various steps which must necessarily be taken for raising the physical standards of school children may be directed in the preschool age by the sane medical counsellor who sees the future lying before his patients and is not satisfied with attending merely to the present ailment. The educational gain that would accrue if children came to school better nourished and freer from physical defects cannot be estimated at the present time because, as a matter of fact, statistics relating to this phase of the problem do not exist.

After children have reached the school age, it is for the physician to decide whether or no the child should go to school. Educators naturally desire to have children at school at an early age in order that they may accomplish the best pedagogic results. The physician, however, should be the arbiter to decide at what age each particular child should go to school and for what period of time it should remain in school. Advice regarding girls at puberty and thereafter is particularly desirable. The medical aspects of education should be considered by physicians so that they may give intelligent advice to those patients who solicit their counsel.

Much time would be saved and marked educational advantages would accrue if each child upon admission to a public school took with him a medical certificate from his family physician stating in brief the existent physical defects, together with any suggestions regarding the physical or mental condition of the child. Such a system would prevent partially deaf children from being regarded as stupid and avert the placing of children with defective vision among the mental defectives and would probably prevent children with such speech defects as stuttering from being placed in ungraded classes. Tics, chorea and various other nervous disorders would not be overlooked. The principals and teachers within the school system would become more capable of fulfilling their duties to the public if they received such medical cooperation as I have suggested. For those children whose parents cannot afford to pay for this preliminary examination the city would necessarily supply medical inspection either at a small cost at a special children's clinic or else supply the medical inspection gratuitously at some chosen place, possibly at a school.

There is frequently a great tendency on the part of physicians to hurry children back to school for fear of interfering with their school work. It is of paramount importance that the physical health of the child should receive the first attention and children should not be sent back to school when they require fresh air and special convalescent care. Nor, indeed, should a child be sent back to school after some enervating illness when even half sessions would place too much strain upon his weakened nervous system. The child will learn more rapidly when in normal condition and with less damage to itself than when nourishment and energy are below par. Health should not be sacrificed for momentary educational progress.

There are times when it is perfectly reasonable to give the school the benefit of the doubt. Conservative diagnosis, when the possibility of a contagious disease is involved, demands that a child be kept at home until the diagnosis is definitely established as non-contagious. The responsibility of the general practitioner is to the community, in such cases, to a far greater extent than to the family. If some contagious condition, as trachoma or ringworm, is noted, the child should not be permitted to go to school unless a communication accompanies him so that the principal may ensure proper protection for the other children in the class. No contagion bearer or bacilli carrier should be permitted to return to his classes without a clean bill of health. The general practitioner is in a large sense responsible for much of the general health of school children, and his attention should necessarily be directed to the importance of safeguarding the physical and mental powers of his patient, while at the same time he is equally cautious in protecting other children from the menace of any preventable diseases.

I believe that the general practitioner has another very valuable function as regards the school in so far as his duties bring him into contact with the teaching force. At the present time the problem of the absence of teachers is of the utmost moment and the loss to the city from unnecessary absences probably is far more than would willingly be admitted. Teachers should not be hurried back to work, even though they feel the necessity of teaching, until they are able to take up their teaching duties. Patience, attention, gentleness, calmness, concentration, decision, indicate the necessity of a normal body and mind in order to be a successful teacher. With weakened nerves and generally impaired health, the teacher is not capable of performing her pedagogic duties for which she receives compensation from the city. The principal sufferers from teachers in ill health are the children themselves, who are not being taught properly, while being exposed to unhealthful influences. In looking over excuses for absence, it is striking to find physicians signing blanks for teachers that they may receive their back pay for absence with such statements as the following: Acute laryngitis—absent 72 days; neurasthenia—absent 4 days. It is needless to enumerate the obvious cases where the physician has apparently been in collusion with the teacher to enable her to secure money to which she is not properly entitled. The tuberculous teacher, the epileptic teacher, the partially deaf teacher, come within the ken of general practitioners, and they should advise such patients as to the serious nature of their conditions and further advise them regarding the necessity of notifying their superiors as to their limitations in the interest of themselves and the school children.

Similarly, I believe that the general practitioner should take some special interest in the problems of school hygiene. There is a great problem before the medical profession which requires careful study. The utilization of educational plants so as to afford abundant opportunity for the education to all types of children in the community is an economic problem no less than an educational or medical question. Special classes are now held for the blind, the deaf, the crippled, the defectives, the anemic and the tuberculous. From all the patient investigations of the needs of these special classes, we have learned the necessity of a sanitary school building, administered on hygienic principles in the interests of the children and the community. School hygiene is a health investment and should be demanded regardless of the difficulties of administration and the high per capita cost that results. It appeals to me as most rational that the physicians with their full knowledge of the rational health and educational value of hygiene for the development of healthy childhood should be in the vanguard in demanding the school opportunities now available for abnormal children in behalf of normal children of normal parents.

Cooperation with existing medical authorities who are working in the schools should be freely given. The reports of the medical inspectors and the nurses should be taken at their true value. They are practically suggestive in nature rather than final and decisive.

They are indicative of the fact that the child who has been inspected by the school physician is not normal. The general practitioner may disagree as to the necessity for the removal of tonsils or for the correction of a spinal curvature, but that decision is for the general practitioner to make. The function of the medical inspector is to indicate particular regions requiring special investigation and his duty has been performed when he gives a notification card to the child. He will be satisfied that his work has borne fruit when the return card has been signed, stating that the child is under the care of the general practitioner.

It is of the utmost importance that the general practitioner should become acquainted with the public school system of the community in which he lives. He should be aware of the playground facilities, the fresh air classes, the ungraded classes, the problems of school furniture, and the questions of school lighting and ventilation. He should possess some definite information regarding the course of study, the hours of study, the amount of required homework, and he should know the conditions relating to sleep, special studies, etc., in so far as his special patient is considered.

The general practitioner as a parent and as a taxpayer should have a wide insight into the purpose of elementary school education. As a parent he should be cognizant of the interrelation of the mental development of children and their physical well being. As a taxpayer his scientific training should enable him to interrogate the responsible authorities, with reference to the results of their educational work and the physical health of the children. As a physician and a parent and a taxpayer, the responsibility of the general practitioner is greater than that of any other portion of the community. His social horizon should be broader, his mental equipment should be better, his scientific judgment should be of greater value in determining problems of a medicoeducational nature. For this reason the physician forms a most valuable member of local school boards, or indeed in every phase of educational work.

In these days of hygienic progress the physician possesses unusual opportunities for public service. No greater public service can claim his thought and knowledge than the problems of the public schools, wherein are gathered the promise of the future safety of his city.

Citizenship to be efficient requires a background of health. The past development of the educational system has been to lay stress upon mentality and the encouragement of learning. The most recent trend in educational thought recognizes the pupil and the teacher as of equal importance to the curriculum and the mode of administration. In this advanced field of physiological and psychological education, there is a growing need of the interest, cooperation and support of the medical profession. Herein lies the opportunity for the general practitioner to assist in the development of rational preventive measures in the physical and mental education in our public schools.

THE VIABILITY OF INFANTS DEPRIVED OF WOMAN'S MILK DURING THE FIRST YEAR*

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Most of the methods employed for recording the results of charitable work among infants show only gross numerical facts, such as "Improved," "Unimproved," "Cured" and "Died." These figures constitute the total record of results of medical supervision over a great variety of cases and represent a wide range of physical defects and diseases. They do not, however, indicate the influence of Philanthropy through medical supervision or instruction upon the most important of all results, namely, the living prospects of the infants which did not die.

The gross numerical method characterizes most of the published data, whether it be from an infants' hospital, the infants' ward of a general hospital, an institution for foundlings or an orphanage; and the results of educational social work are usually recorded in like manner, either in the mortality records or the influence of the philanthropy upon the weight or environment of the infant without a comprehensive record of all factors contributing to the progress toward a normal physical condition. In special hospitals for the care and cure of sick infants it is usually sufficient to keep the children under observation long enough to study to the full the effects of the work done in the hospital.

Philanthropic agencies acting alone in this matter will not be able to accomplish great and lasting good, except with the aid of science and scientific facts, and such supervision can only be had through institutions equipped for scientific study and research into the physical welfare of infants.

When these various kinds of works are combined under the same direction, it would be desirable if some simple system could be formulated for the collection of facts, which would show the relative value of the various kinds of work, whether philanthropic or scientific, upon the reduction of infant morbidity and mortality.

*Read before Section of Children's Diseases at the International Congress of Medicine held in London, August 6 to 13, 1913.

The percentage plan of scoring has been employed to determine the status of social, scientific and commercial investigations, but no comprehensive scoring plan has been adopted which would include in its scope all conditions which influence the care, the physical condition and the living powers of the infant.

The method presented consists of a statistical score card and is designed for the collection of facts to determine the influence of environment, of management, of nourishment and of morbidity upon the viability of the infant, with a graphic chart to show the improvement in viability during a given time through the activities of a hospital, a medical philanthropy or educational work when directed to the betterment of the conditions which influence the life of the infant.

The chief object of such a system of scoring is to determine whether our work is worth while, whether we are barely saving the infants by carrying them across the living line, or whether we are giving them security and restoring them to a normal maximum of viability.

It would not be a satisfactory result of our work, either in the hospital or social service, to find that we turn out chiefly weaklings so handicapped by the effects of disease that life becomes a continuous struggle and our beneficiaries finally become dependent.

Such a plan should be flexible enough to be easily adapted to any line of medical work with infants, either in the hospital, the clinic or institution, and through which the children may be followed to their homes and kept under observation for a considerable period after the institutional treatment has terminated.

It should be so simple and clear that one not versed in medical matters can score accurately on the medical record. The value of the factors, except in a few extrinsic relations, should be maximum and negative, so that personal judgment, which is always variable in individuals, may not show errors in marking the score. This can be accomplished best by fixing values only on perfect conditions, which includes all the intrinsic factors.

In scoring the physical state, value should be given only on organic or functional integrity. Attempts to give values to the different diseases must be abandoned as impossible. For the purposes of such a system, it is necessary to eliminate all values for physical states which are not normal. The total values are divided equally between the extrinsic and intrinsic factors, 200 being allowed to each.

In order to make satisfactory use of the method herewith presented, it is best to carry the investigations beyond hospital, clinic or consultation. It will require the work of a physician to determine the physical condition of the child and to dictate or write its medical history. It also requires the service of a visiting nurse to see the case periodically in its home, to weigh it and mark the weight chart, to make records of the environment, the hygiene, the management and care; to instruct the mother or caretaker, to note any subsequent or intercurrent illness and to make records of progress in any or all of the conditions involved.

The maximum score being fixed in each line of investigation, it is easy to determine the progress due to the influence of the physician's work, nurse's work, or their work combined. The total score for the month, if averaged, will represent the same ratio, and this figure, with the subsequent monthly scorings, will show the improvement in the physical condition of the individual.

The total score for the month, expressed in figures and averaged, is transferred to the graphic percentage chart designed to show the improvement in the case during the possible period of one year.

The graphic chart may also be used to express the viability of the individual at the beginning and at the end of the year, and the average of the first and last scorings of those who have been under observation during the entire year will show their average viability and the gross advantage of the work of the philanthropy.

An attempt at simplicity should be made both with respect to the comprehensiveness of the data to be gathered and the method of recording it. Very little writing is required; negative answers require no entry; positive answers, except in a few instances, may be indicated by a check or cross and the medical history may be written with very little labor.

Under management and care, after estimating the values of type in the caretaker, it was found that the number of children in the family was an important element in lowering the living prospects of the infant, the best results being obtained with the single child to care for. It was discovered that a ten year old child would be able to help the mother and that the problem of numbers begins to be unlocked at this age so that the scoring includes only children under ten years of age.

Under nourishment. The maximum score is based upon the possibility of normal breast feeding and the classes or kind of food are scaled down to a minimum in the order of their relative nutritive value as compared with good breast milk. The principle used in fixing these values is our personal estimate of what the increase in the general infant mortality would be if all babies were deprived of breast milk and were compelled to depend upon mixed feeding, rational bottle feeding, patented food with good milk, patented food with poor milk, dried milk, condensed milk or carbohydrates only. Scoring the mixed diet in the second year is a simple matter of judgment.

The morbidity score is based upon the integrity of the various organic and functional systems in the body. An attempt has been made to allow a value for organic integrity when its function only is impaired. Impairment of either the organ or its function at the time of marking the score should eliminate its maximum value.

The initial scoring of each case is based upon the medical history taken at the hospital or consultation when the child comes under observation and then from period to period the initial record should be checked on the intercurrent excursions from normal organic and functional integrity as indicated by the hospital record or the record of the visiting nurse, the variations being determined by the physician.

The principles of the system may be stated as follows:

1. Simple and brief enough for clerical efficiency.
2. Comprehensive as to facts and figures.
3. Distinct divisions for separate estimations of sociologic hygienic or morbific influences.
4. Correct distribution of the combined factor values.
5. Factor values not affected by varying individual or flexible judgment.
6. Graphic record of results.

Charts of 100 babies scored during a period of one year.

All children were deprived of breast milk from birth or within the first month.

Charts show the average viability at the beginning of the service and at 3 months, 6 months, 9 months and one year. Also record of 25 Italian and 25 Jewish babies taken together and scored for one year.

BATHS AND BATHING

By JOHN W. WAINWRIGHT, M.D., New York

Only in recent years has it been considered necessary to maintain public bathing establishments. A few of our larger cities have had floating baths, but these were open to the public only during the summer months. The policy of maintaining public baths at municipal expense seems to have commended itself to those interested in the improvement of the condition of the poor, and appropriations have been made in New York, Chicago, Philadelphia, Buffalo, Boston and a few other cities, for the erection and maintenance of bathing establishments available to the public throughout the year. It is to be hoped that the good work thus inaugurated will appeal to all large cities, and thus in a large way help to eliminate some of the dangers accruing from conditions unfavorable to cleanliness, comfort and health.

Bathing if not as old as the hills, at any rate is as old as man himself. Indeed the ancients paid more attention to the value of bathing than do we of modern times. Bathing with many of the old races was a part of their religion. One of the laws of Moses was purification by water, and bath houses were established in India, Persia, Assyria, and Egypt. The Hebrew's ritual ordered that the body should be washed before the daily meals, before wedding festivities and birth celebrations and before all religious ceremonies.

A Roman emperor if he wished to gain the good will of his people expended with a lavish hand the money of the State in the construction of thermae, vast buildings, containing suites of bathing apartments, gymnasia, and sometimes even theaters and libraries. In the time of Ptolemy, Alexandria was unrivalled in its public bath system. The Greeks, again, were fully impressed with the value of baths in physical culture and for retaining "mens sana in corpore sano." Especially did the Greeks hold sea bathing in high favor as a therapeutic measure. Aristophanes in the scene in which Plutus is led to the Temple of Esculapius to cure him of his blindness, chooses sea bathing as the remedy to effect this purpose. Seutonius states that water from the sea was first introduced into Rome for use in bathing by Nero and most of the Roman Emperors had their seaside palaces at which they passed a portion of the year. All the civilized nations of the ancient world set a very high value on bathing and personal cleanliness, and their bathing systems would put to shame the efforts in this direction of the people of the present time.

In modern times Germany was the first country to establish public municipal baths. So far back as the thirteenth century river baths for the summer months have been in existence in that country. Great Britain was the first to inaugurate the present system of people's baths. In 1794, Liverpool purchased a private swimming establishment and threw it open to the public, and in 1842 the municipality of that city opened public baths and washhouses. Liverpool with a population of 660,000 has spent more than all the American cities combined for baths. Almost all the towns of Great Britain possess public baths in proportion to their population. London has thirty-five. Glasgow has twelve public baths and five swimming baths. The Continent of Europe generally has followed the lead of Great Britain, and in many ways Germany has improved upon the system in vogue there.

Of all the countries of the earth, however, Japan is easily first in facilities for bathing. With the Japanese personal cleanliness is a passion and the use of water in every way is more common than elsewhere.

In Tokio there are more than 800 public baths, and from 800,000 to 1,000,000 people go to the public baths daily. The population of the city is less than 2,000,000 and the death rate for children is lower than it is in Europe or in America.

The United States is very backward so far as public baths are concerned. There are few cities which provide them—not more than twelve—and the interest taken in the matter is very languid. Lyon Playfair said that a great part of sanitary science can be comprised in that one word—cleanliness. The influence of bathing facilities on the public health is very great and consequently municipal baths should be regarded not as a luxury, but as a necessity. Personal cleanliness is a most important factor in the life of a people. It goes without saying that there should be baths; if possible in every private house, but beyond this there should be facilities easily available to the dwellers in the poor districts of cities for bathing. The report of the committee appointed by the Mayor of New York, transmitted to the Legislature on March 25, 1897, was that out of 480 houses visited only 17 had baths and only three houses of each 100 had bath rooms and that there were only three public baths in the city of New York. As it was in this respect in New York, so it was to a greater or less extent in every American city.

People's baths are thus badly needed; such establishments should be simple, unpretentious yet inviting structures, with all necessary means for cleanliness and comfort, but without superfluous luxury. As to the form of bath most suitable to the use of the dwellers in the tenement districts of cities, the consensus of opinion is that the rain bath fulfills best the required conditions. In the Berlin Health Exhibition of 1883, the solution of the problem of providing cheap baths for the masses was first indicated by the people's baths of Grove Lassar. The novelty consisted in the use of the inclined overhead tepid spray in place of the tub or plunge. According to Gerhard, no form of bath is better adapted from a hygienic and economical point of view for working people than the tepid shower or rain bath. It is the simplest, quickest, cheapest, cleanest, and withal best bath for people's bath houses; the one which requires the least space, the least time, the least amount of water, the least fuel for warming water, the least attendance and the least cost of maintenance. Baths of this description have also been strongly recommended, in fact are in use in some public schools both in the United States and in Great Britain. The value of baths in public schools is so patent as to need no emphasis. Factories also should be provided with ample bathing facilities. Here too the rain douche bath supplies most effectively the double object of bathing and washing. Prisons, hospitals and all public institutions and especially those devoted to the care of the insane should be generously provided with bathing and washing facilities. While cleanliness is good for the health, both physical and moral, the exercise of swimming is of importance in the preservation of bodily health and strength, and every city should possess swimming pools. Hawk has recently undertaken investigations at the University of Pennsylvania, with regard to demonstrating the comparative value of various physical exercises, the result being that he has shown swimming to be the most beneficial. He visited the dressing-rooms at the athletic field, and immediately before each athlete left for his exercise drew blood from him with a sterile needle. Then when the athlete returned to the dressing room after running, jumping, pole vaulting, or engaging in water-polo, the needle would again be brought into play, and a second sample of blood drawn. Analysis of the blood, to discover how far each exercise increased the number of red corpuscles, showed that water polo and other forms of swimming resulted in the largest increase. Swimming resulted in an average of twenty-one per cent., as against seventeen per cent. for the next best exercise.

Bathing.—All baths are unsuitable for the asthenic, and are to be avoided by those who have a tendency to apoplexy, and by those suffering from fatty heart. Should a cold bath be followed by chilliness, it is proof that harm is being done. Cold baths, moderately indulged in for a short period only, are followed with a return and even increase in bodily temperature. This action is reflex, the increased heat production being due to more rapid molecular transformation. Warm baths of short duration cause a decrease in the temperature of the body by retarding heat production, and by dilating the capillaries, thus favoring radiation. If prolonged, a warm bath raises the bodily temperature by the additional heat brought to the skin, and by checking normal radiation. The depressing effect following a prolonged warm bath may be to a large extent overcome by the addition of salt to the water. For purposes of stimulation, a hot bath should always be of short duration, two minutes at the most, for as soon as the temperature of the water is lowered, the bather will be subject to the depressing effect of moist heat.

Much comfort and benefit may be derived from occasional sponging of the body with cold water. When one possesses sufficient vital power to react after the bath, sea bathing is often of great benefit. It is well, however, to warn debilitated persons from indulging in sea baths, since they may produce serious exhaustion—partly by the excessive abstraction of heat from the body, and partly by fatigue.

Sea baths are stimulating in a high degree. The respiratory and general changes are affected in the same manner as in any application of cold therapeutics, and these effects are enhanced by the richness of the water in mineral constituents; and lastly is experienced the beneficial effects of the exercise of swimming. Robin and Binet explain the action of sea bathing as follows: "The various elements of activity in a sea bath stimulate the peripheral nerve terminals, and the extensive nervous surface of the integument, and this stimulus is transmitted centripetally to the nerve centers, which preside over general nutrition." Robin also said: "Sea baths accentuate the double process of assimilation and dissimilation, which together constitute nutrition, this prime manifestation of vital energy. It promotes the combustion of the residues of organic activity which, instead of stagnating in the organism and by their retention engendering functional disturbances which are the forerunners of actual disease, are rendered soluble and their elimination from the economy thus facilitated." Sea baths are suitable for the rickety, the lymphatic, the strumous, the subjects of osseous and glandular tuberculosis, in anemia with slowed nutrition, in obesity by defective metabolism, in those predisposed to gout, in chronic autointoxication, in hyposthenic dyspepsia, in convalescence after febrile diseases, and for diabetics when retention has begun to give way. They are contraindicated in cases of pulmonary tuberculosis in which nutritive exchanges are usually overactive. In cases of rheumatism with acute or subacute attacks of arthritis with neuralgic attacks. Hysterical subjects as a rule derive no benefit from sea air or sea bathing. Cold water baths are contraindicated on account of their influence in causing contraction of the peripheral vessels and intropulsion of the blood in internal organs, in the presence of diseases that predispose to internal hemorrhage, to hemoptysis, hematemesis, uterine hemorrhage, and in the aged, in cerebral hemorrhage; further in cases of valvular disease of the heart, arteriosclerosis, cholelithiasis, recent rheumatism, gastric catarrh. The cold sea bath is not adapted for greatly emaciated or profoundly anemic individuals or for those recently convalescent from severe illness.

Very wonderful therapeutic properties have been credited to the action of heat as administered in the form of the *Turkish bath* (dry heat) and in the *Russian bath* (moist heat). It sometimes occurs that a person taking a Turkish or Russian bath fails to sweat freely and in consequence complains of a feeling of distress and perhaps develops a severe headache. In such cases, it is better to discontinue the bath, since sudden death has taken place from heat stroke while indulging in the Turkish bath, as well as from congestion of the lungs.

Bathing Children.—Some definite rules should be established for bathing of children, since baths not given rationally may expose a child to catarrhal affections and their consequences. In early childhood baths prove useful therapeutically, not only on account of their influence upon the functions of the skin, but also because of their influence upon nutrition and the whole organism. The daily warm bath, from 90 deg. to 98 deg., has become a practice among the better educated people, and infants and young children seem the better for it. As the child grows older, the temperature of the water should be gradually made lower, thus securing that which the Germans term "hardening effect." The mother or nurse should be instructed in the proper use of the bath. The child's face and scalp should be carefully washed with soap and water, care being observed in protecting the eyes. This should be done before the child is completely undressed, and its body and limbs cleansed with liberal supply of soap and water. The child is now ready to be immersed in its bath. Quickly removing all traces of soap lather, the child may be permitted to remain in the water for two or three minutes, and is then wrapped in a large Turkish towel, and quickly dried.

Baths for Elderly Persons.—The use of baths in elderly persons restores elasticity and smoothness to the skin, loosens the tissues and thereby brings back fulness and roundness to the limbs. It tends to prevent eruptions, or where these are present, it often removes them. It is well to commence with these baths as soon as the first infirmities of age begin to make themselves felt. The best time for bathing is the forenoon, about two hours after breakfast, or the afternoon, about four hours after the midday meal. Two baths should be taken every week, and should never be too hot or too cold.

Bathing during the Menstrual Period.—With regard to this matter Edgar says: 1. "All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by cautious and gentle progression, but not for every woman does this hold good; surf bathing, where the body surface remains chilled for some time, should always be excepted. 2. A daily tepid sponge bath (85 to 92° F.) during the menstrual period is not only a harmless proceeding, but is demanded by the rules of hygiene. 3. In the majority of, if not all women, tepid sponge bathing after the establishment of the menstrual flow is a perfectly safe practice. 4. Furthermore, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired."

Bathing for Parturients.—Shumaker has made extensive bacteriological studies of this question and thinks we have no reason to disregard the bath altogether. Germs may sometimes find their way into the vagina from the bath water, but this occurrence is very rare and is usually dependent on defective healing of lacerations of the perineum. The practice of washing off the external parts has no advantage over the full bath.

THE TREATMENT OF APPENDICITIS.

The treatment of appendicitis has been for long a theme for almost endless discussion. Since the time that American surgeons found that a radical cure for the condition was to be reached by operation, the knife has been called into use more and more widely.

At the present time there are many who contend that in all cases of appendicitis operative measures should be proceeded with at once. Somewhat recently, however, a reaction against the employment of these heroic methods appears to have taken place, and by some it is considered that more discrimination should be used before resort is had to operation. This is to say, that there are cases which will recover without operation, and the question is how to correctly diagnose between a serious condition demanding immediate radical steps and a condition in which the use of the knife is superfluous and unnecessary. This matter has once more been well thrashed out, on this occasion before the Medical Society of London. Mr. Edmund Owen, a well known London surgeon, opened the debate by reading a paper published in the *Lancet*, February 15th, 1913. The motive of the paper is to urge immediate operation, and Owen regards the question solely from the surgeon's standpoint. He asserts that it is so difficult to say when appendicitis is dangerous or not, that the safest course to follow in all cases in which the appendix is directly concerned is forthwith to operate. He says: "I have long since made up my mind what I shall do if I, in my turn, become the subject of appendicitis—I shall at once call in a surgical friend, and if he says, 'Yes, I think the appendix is at fault,' I shall ask him if he will mind my getting another surgeon, not a physician, to come to see me with him for the purpose of confirmation; and on the diagnosis being confirmed, I shall beg him to operate immediately. And if these principles were adopted in all cases of appendicitis, the mortality of the disease would probably be lowered by 90 per cent." In the discussion that followed, Mr. Battle, another distinguished British surgeon, among other remarks, made use of the following: "So much harm has been done in the past by the spread of an idea which is prevalent, that appendicitis is a harmless, fashionable complaint, that even now it is difficult to make some people appreciate the fact that it has many, some of which might be deadly. They often know of some friend who had an attack, perhaps more than one, from which he recovered in a few days, and did not see why they could not be treated as he was. The conclusion they come to is that if the doctor is right in his diagnosis he did not know as much about the treatment as the one who cured his friend with medicine. It must be evident that if early operation, that is, operation within the first 24 hours, were possible in every case, the great mortality of this disease, amounting to several hundreds a year in this country and some thousands a year in the United States, would be reduced to reasonable numbers." Several others who joined in the discussion strongly advocated early operation, and with these conclusions the president of the Society, Sir W. Watson Cheyne, earnestly agreed.

The above meeting was composed wholly of surgeons, and all hard and fast believers in immediate operation for appendicitis. It was unfortunate that some eminent physicians did not attend, in order to set forth their views on the matter. True it is that the surgeons present were celebrated, but the meeting would have carried more weight had those who support a waiting policy been present to give their opinions. So far as the meeting was concerned, all agreed that immediately after a diagnosis had been made an operation should be performed. Some, however, gave it as their opinion that if an abscess were found the surgeon should merely open the abscess, and unless the appendix should present itself in the wound, should not remove it until a later date. Otherwise, the meeting was unanimous that if anything be wrong with the appendix, the sooner it is out of the body the better it will be for the patient. It would be now fitting that the views of the physicians were heard and made public.

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EDITORIALS

THE ROLL OF DYE STUFFS IN MEDICINE

Anilin dyes are popularly regarded as coal tar products, but this is not true, for picric acid, aurin, eosin, alizarin, indigo, anthrapurpurin and many other important coloring matters are, strictly speaking, coal tar derivatives, though they cannot be described as anilin dyes.

All colored organic compounds, such as quinone, azobenzene derivatives, nitrocompounds, etc., are decolorized by reducing agents, and from this we infer that coloring matters either contain elements with incompletely saturated affinities, or that certain of the atoms are present in more intimate association than their retention in the molecule necessitates. These coloring matters are acted upon by salt forming groups, and on the nature of these groups depends the character of the coloring. In the same manner color giving groups are treated with substitution groups in order to form compounds of medicinal or therapeutic value.

Benzoyl group, obtained from anilin, a component part or base into which are introduced various molecules, changing the product into meta, ortho and para products, each having an affinity for some (or a) particular organic structure, influencing it in such a manner as to produce therapeutic effects.

Spectroscopic investigations show that no open chain hydrocarbon causes selective absorption, but that benzene, C_6H_6, and allied hydrocarbons are characterized by selective absorption of the most refrangible rays, and thereby differentiated from all other classes. It may be stated that benzene has invisible color, which will become visible when the rate of vibration is so slackened that it is possible for the molecule to absorb rays having an oscillation frequency occurring within the limits of visibility. Phenol will show selective absorption in the ultra violet region, but the replacement of three hydrogen atoms by three nitro groups will give the yellow picric acid.

The mere fact that an aromatic substance is colored or has dyeing properties does not necessarily mean that it will in consequence show any novel pharmacological action. Ehrlich employed the aromatic dyes to elucidate the distribution of poisons and drugs in the animal body, or, rather, to throw light on the selective action of the cells. From observations of this character Ehrlich deduced the hypothesis that the various cells of the body take up different chemical substances in a greater or less degree according to their chemical environment. Besides these somewhat theoretical results discovered, observations on the physiological action of the organic dye stuffs have also of recent years begun to show results of practical value; and it is quite possible that still further developments in therapeutics may result from a further study of these derivatives. Many possess a remarkable bactericidal action, and it has been possible to employ them against some of the most virulent bacterial infections, as we shall see further on.

The parasites, trypanosomes, have been shown to be markedly influenced, both in experimental researches on animals and in man, by treatment with, for instance, malachite green and trypan blue.

We shall discuss very briefly some of the dye stuffs found useful in the treatment of diseases:

Class 1. The nitro derivatives of the phenols, picric acid and dinitro-cresol.

The introduction of the nitro group into phenolic substances increases their antiseptic and toxic action. Both are powerful blood poisons and respiratory depressants, especially the dinitro-cresol, possibly owing to its greater solubility. The group of naphthol-nitro derivation includes Martins yellow, which is similar in its action to dinitro-cresol.

Class 2. Azo dyes.

These dyes are a class of substances which contain as chromophore the group —N-N—. The simplest azo dyes are yellow, and this tint is, first, dependent on the nature of the auxochrome group and, secondly, on that of the carbon complex. They may be made to pass through red to violet, and in some instances to brown. Those containing the benzene nucleus are yellow, orange and brown; those naphthalene, red. Trypan red is a benzidine dye obtained from benzidine-monosulphonic acid by diazotization and combination with sodium salt of the disulphonic acid of B— naphthylamin. Ehrlich and Shiga experimented with this substance on mice infected with trypanosomiasis. One per cent. solutions were injected subcutaneously in quantities of 0.5 to 1.0 cc. These injections have a very marked though temporary destructive action on the parasites. Animals, after cure, were protected to a great extent against a second infection.

Trypan blue, though differing in its chemical constitution, has an action similar to that of trypan red on trypanosomes. Ehrlich declares that strains resistant to the one are also immune to the other, though they may be destroyed by fuchsin or atoxyl.

Class 3. Di and tri-phenyl-methane dyes.

Pyoktannin and malachite green have been employed by Wendestadt to destroy trypanosomes of the tse-tse fly disease. They have also been employed by F. Loeffer for separating colonies of bacillus coli and the bacillus of typhoid fever. The growth of the former was prevented by an admixture of the dye with the culture medium; the colonies of the latter remaining unaffected. Methyl violet is a mixture of the hydrochlorides of the hexa-methyl-pararosanilin and penta-methyl-benzyl-pararosanilin. Methyl violet is a more powerful antiseptic than is pyoktannin, but relatively less toxic. It has been used locally for inoperable cancer.

A large number of similar derivatives have been studied and found to have antiseptic properties which differ but slightly from those of the parent dyes. The antiseptic power of rosanilin or fuchsin have not been shown to be in direct relation to their staining properties, but depend upon the presence of the aromatic nuclei.

Eosin, the alkali salt of tetrabrom-fluorescein has been shown by Noguchi to have the power of neutralizing certain toxic substances occurring in cobra and other snake venoms.

Class 4. Methylene Blue.

Methylene blue has been tried in malaria, but does not compare favorably with quinine. In large doses it is a powerful irritant. Gautrelet and Bernard have shown that, given to rabbits, it causes a fall in urea excretion and some decrease in the activity of the kidneys.

Class 5. Phosphine.

Philadelphia yellow is a powerful protoplasmic poison, as well as a local irritant. It has been tried as a substitute for quinine in malaria, but does not seem to have been successful. Is absorbed from the stomach with difficulty.

Scarlet red, a very brilliant scarlet dye is made by the action of diazoazobenzol disulphonic acid upon B-naphthol, and has been found to have the singular property of producing a typical epithelial proliferation, and, therefore, successfully employed in the treatment of indolent ulcers.

ALIMENTARY TOXEMIA DUE TO PYORRHEA ALVEOLARIS

The mouth and teeth are the cause of innumerable physical ills. Dental caries is preëminently a disease of civilization, but is, unfortunately, at the present time the most prevalent affection known. It is the greatest bane of civilization, for its effects, direct and indirect, involve all the organs of the body. At a meeting of the Royal Society of Medicine of Great Britain, held in London on March 13, 1913, and reported in the *Lancet* March 15, 1913, the subject of alimentary toxemia was discussed. Dr. W. Hale White, senior physician to Guy's Hospital, read a paper, in which he emphasized the importance of keeping the mouth and teeth in good condition. He said, in part, that the simplest alimentary toxemia was that due to pyorrhea alveolaris. The local trouble in the mouth leads to imperfect mastication; hence large pieces of food are swallowed which cannot be digested, and, if they contain microorganisms which, if in the mass were properly masticated, would be set free in the stomach and destroyed there, may indirectly lead to the production of poisons in the intestine. Further, the microorganisms discharged in the pus from the gums may be swallowed, and it is possible that the gastric secretions, being abnormal or deficient, may not kill them, or that, if the stomach is well filled with solid food and the microorganisms are then washed down with a draught of water, they will be rapidly passed through the stomach, and hence reach the intestine and cause intestinal toxemia. It may be that in some diseases microorganisms found in the intestine have been excreted from the blood and that such organisms may, when in the intestine, manufacture poisons. Microorganisms, taken into the blood from the diseased gums, may cause intestinal toxemia. Lastly, the microorganisms in the gums may pass into the blood and cause septicemia, varying from mild to severe. White has met with several fatal cases, and very many persons who owe general ill health or chronic indigestion to pyorrhea. At the same meeting, Mr. J. F. Collyer spoke on the consequences and treatment of alimentary toxemia from a dentist's point of view. He prefaced his remarks by a reference to the two sources of oral sepsis, caries and periodontal diseases. The chief effect of caries was to render the teeth themselves and their immediate neighbors functionless, and in that way to produce stagnation areas and a marginal gingivitis. With regard to periodontal disease, he emphasized the following points: 1. The gums might appear, to the untrained eye, almost healthy, yet the tooth socket might in places be destroyed almost to the apex of the tooth and pus might be present in pockets around the tooth. 2. The disease was slow in its progress, more especially in its early stages. 3. These early stages of the disease could often be recognized in quite young adults. 4. The extent of the disease could only be accurately gauged by examining each individual tooth with a fine probe to ascertain the depth of the pockets. 5. The disease was more intractable and more serious in its results in those that were mouth breathers.

He said it might be safely asserted that any one who breathed through the mouth, even for a short period during the day, could not possibly have a healthy mouth. As for the possible relationship of dental sepsis to general alimentary conditions, it must be kept clearly in view that dental diseases were very prevalent, and that, therefore, the association with another condition did not necessarily imply cause and effect. That the effects, however, of dental sepsis were far reaching there could be but little doubt. In the treatment of children, attention must be especially directed towards rendering the mouth functional: By correcting nasal obstruction, if present; and by treating the teeth themselves. In adults the treatment resolved itself into the treatment of periodontal disease. The problem was the efficient drainage of the pockets around the teeth, a problem which seemed easy in theory, but which was exceedingly difficult in practice.

Pyorrhea alveolaris is very frequently overlooked. When seeing a patient for the first time, it is as important to examine the teeth as to feel the pulse. Instead of saying, put out your tongue, the up-to-date physician will say, open your mouth wide. Although pyorrhea is most common among poor, ill-educated people, it is often·found in those who presumably clean their teeth properly, and sufferers from it are unaware that they have anything amiss with their teeth.

Children's teeth in this country, and to a greater extent in Europe, are defective. Statistics in America show that a very large proportion of children at the public schools suffer from oral sepsis in a more or less aggravated form. It is to the advantage of the race that the teeth of the rising generation should be good and the condition of their mouths healthy. In fact, oral sepsis is a distinct menace to the race, and it is worth while to employ money unsparingly to render the teeth and mouths of the population sanitary. This is thoroughly recognized now in Europe, and in Great Britain in particular, where no expense is being spared to remedy, by dental art, the ravages to the teeth and mouth brought about by heredity, unsuitable diet, unhealthy mode of living, and the many causes which go to make up the sum total. The teeth of a nation may in many respects be regarded as an index of health, and, therefore, it behooves the health authorities to take all needful measures to ensure sound teeth in a wholesome mouth.

THE MENACE OF CANCER

The search for a cancer cure is seemingly as illusional as that for tuberculosis, the incentive, because of the greater mortality of cancer.

Some startling statistics on the prevalence of cancer were recently given to the American Gynecological Society, May 7th, by Mr. Frederick L. Hoffman, statistician of the Prudential Insurance Company of America, in a paper presented to the Society, "The Menace of Cancer." He declared that, because of the terrible and insidious character of cancer and the constantly increasing death rate, with resulting great mortality, the cancer problem was without doubt one for most serious consideration. From available data, Mr. Hoffman believes that cancer is on the increase in this country, though to a variable degree, and according to age, sex, race and locality, age being the most important factor, as cancer is comparatively rare in early life, but quite common after the age of forty. The death rate increases by degrees to the age of thirty-five, and then increases rapidly to the end of life. It is greater throughout for women, because of the mortality from cancer of the breast, and of the organs of generation. He states that there were 12,557 more deaths from cancer during 1910 than from tuberculosis. Statistics of American cities, since 1870, show that the increase in cancer is real, and that the dread disease is greater at the present time than it has been in the past. Cancer is indeed a fearful menace to mankind, causing, as it does, some 500,000 deaths per year in the civilized world. A campaign of education seems to be the only hope at present; early treatment, operative or some nonoperative procedure in the hope to stay its ravages.

GREEN VEGETABLES IN THE TREATMENT OF DIARRHEA

The value of the cooked stems and leaves of certain vegetables in the diet is indisputable. Their antiscorbutic and gently laxative properties render them useful food adjuncts, but it should be remembered that their actual food value is relatively low. A novel use for greens is described by Cunningham Wilson, *Boston Medical and Surgical Journal*, August 28, 1913, who has been treating all chronic diarrheas and cases of acute diarrhea and dysentery that have resisted ordinary methods with a diet of spinach, turnip greens and mustard tops, with the most gratifying results. The method has been adopted by the author for the last nine years, and it is stated to be so simple and to give such a measure of relief that patients are willing to continue the treatment as directed. A tablespoonful or more of spinach, turnip or mustard tops is given four times a day for one or two weeks, no other food, save a little dry toast, being allowed unless patients become very anxious for it. At first the stools show the undigested food, but immediately following this the motions become more solid, and at the same time flatulence and tenesmus disappear when these symptoms have been present. The author's first experience with this treatment was confined to chronic conditions, but later he found that equally good results could be obtained in acute dysenteries which failed to respond to salts or opium and oil. The greens are thoroughly well cooked, and generally well tolerated. The use of the greens is advised for some few weeks after the patient has resumed his regular diet.

CALCIUM CHLORIDE

It was shown through experiments by Hammarsten, Ringer and others, some years since, that the coagulability of the blood depends upon the presence in that fluid of calcium. The chloride salt was used in a variety of conditions, with the result that its almost universal adoption was brought about as an efficient hemostatic in all cases where hemorrhage was anticipated or in actual evidence by clinicians in Europe and America. Reports collected from medical literature show it curative in hemophilia, purpura, hemoptysis, epistaxis, gastrointestinal hemorrhage, aneurisms, menorrhagia, postpartum hemorrhage and in teeth extraction, as well as general surgery before operations. It acts as an aid in the cicatrization of tubercular ulcerations, in chorea and colliquative diarrhea of children, and as a curative agent in eczema and lupus, chilblains and ulcers; in glandular enlargements, urticaria, uterine fibroids and vomiting from sarcina. Finally, as a cardiac tonic and in promoting the secretion of milk in nursing mothers.

PERSONALITY BEYOND THE GRAVE

The lives of men in all stages of civilization have been profoundly influenced by a belief in a world stretching beyond their finite senses, a peopled world, a world of revelation and of present aid to striving humanity. Quite apart from his belief that personalities of men survive death and seek to signal those on earth through the ocean of ether, Sir Oliver Lodge has not been able to offer convincing proofs to the scientific world that such has been accomplished. It is true that "it will not yet do to reduce the world to the science of physics and chemistry." Neither will it do to found a belief or declare a fact unsusceptible of proof. If the "body of responsible investigators who have even now landed on the treacherous but promising shores of the new continent" can bring to us unmistakable evidences of the survival of man's personality, then will the whole human race rejoice. But these other shores have indeed hitherto proven treacherous; no one has returned from them, nor have they ever been heard from.

Sir Oliver's oration before the British Association was masterful, but not convincing.

IS THERE A HEREDITY IN DEAF MUTES?

A study of heredity of deaf mutism has been made in Washington on the basis of 4,471 marriages of deaf mutes. In a considerable number of the cases no information was obtainable in regard to the marriages, and in others the marriages had taken place too recently to be of service in the investigation. Of 3,078 marriages of a year's standing or more, about 17 per cent. were childless; of 2,342 marriages, the resulting children were not deaf mutes; and in only 300 cases deaf offspring were also produced. In such statistics a matter of chief importance is the determination of the cause of deafness in the parents. If acquired through disease after birth, there is naturally no reason why the deafness should be transmitted. If, on the other hand, the deafness were congenital in character, there would be more reason to expect a like condition in the offspring. Such figures, no doubt, are an argument in favor of the nonheredity of acquired characters.

TYPHOID VACCINATION IN THE FRENCH ARMY

Official statistics show that in France no case of typhoid fever has occurred among the soldiers vaccinated, who, on December 31st, 1912, numbered 37,140. Only one case was reported among 13,290 men vaccinated in Algiers-Tunis, and that was a soldier who had come from Morocco. In Morocco the results were: in Eastern Morocco the morbidity and mortality were nil, while among the nonvaccinated the morbidity was 38.23, the mortality 5.51 per 1,000. In Western Morocco the morbidity among the vaccinated was 2.96, the mortality 0.09 per 1,000; while among the nonvaccinated the morbidity was 168.75 and the mortality 21.29 per 1,000. Taking the average typhoid statistics for the whole army, it is estimated that antityphoid vaccination has, among the 62,788 men treated, prevented 2,101 cases of the disease and 266 deaths during the year 1912.

EVOLUTION.

"Birth, life, and death are of form only. The one life of the universe continues unceasingly and unvaryingly. It is the reality alone, not the form, of the universe which is eternal. It is that, too, which is imperceptible, which possesses neither attributes, character, nor individuality. It is not alone that the human senses take no cognizance of aught but mere form. They take cognizance only of change in form. If it were not for the birth, life, and death of many millions of forms before the eye each second, we should see no light. Were it not for ceaseless alteration of air pressure upon our ear drums we should live in blank silence. Were it not for ceaseless chemical metabolisms of carbon, hydrogen, oxygen, and nitrogen—themselves unchanging—in vegetable life, we should live in a desert; though sun, moon, and earth still circled, we should have no seasons; winter would mean a cold, bare rock, and summer a hot one, equally bare. Were it not for the ceaseless procession of newborn babies into the world, of children shooting up into the bloom of adolescence, of active lives grown seamed and scarred and feeble from the buffets of fate, of old people laid lovingly away to rest, there could be no progress or history to the human race."

DIGEST OF CURRENT MEDICAL LITERATURE

Syphilis and Salvarsan.—One of the most interesting discussions at the International Congress of Medicine, reports *The Medical Press*, September 17, 1913, was that which dealt with the treatment of syphilis by salvarsan. It was opened in person by Ehrlich, the discoverer of the great remedy in question. One interesting point brought out by him was the harmlessness of the drug upon the internal organs. Guinea pigs were not killed by daily doses of from 0.02 to 0.05 gram continued for three months. Its nontoxicity in small, long continued doses was at the same time thus demonstrated. The febrile reaction following injection, concerning which a good deal was formerly heard, he ascribed to (1) errors in the technic of administration, (2) to the toxins generated by the destruction of the spirochetes. He further remarked in this connection that salvarsan killed a great number of organisms besides those of syphilis. Recurrence he believed to be the result of insufficient dosage. As regards mortality, he very aptly remarked that chloroform was annually responsible for a much higher percentage of deaths than salvarsan, and he was confident that the proportion might be materially reduced in the latter case by a careful exclusion of renal inadequacy, Addison's disease, status lymphaticus, and other conditions that contraindicated the use of "606."

Professor Neisser, who was unable to attend the Congress through illness, sent a communication, in which he expressed his belief that salvarsan had a specific action upon the Spirocheta pallida, while he denied a neurotropic influence. The specific bactericidal action, in his opinion, was enhanced by the simultaneous injection of grey oil. He went so far as to advocate two complete courses of salvarsan and mercury even in primary cases. One important paper was by Lieut.-Col. Gibbon and Major Harrison. They gave the results of their routine administration of "606" at the Military Hospital, Rochester Row, London. With mercury alone there were 85 per cent. of relapses, as against only 5.1 per cent. since salvarsan had been introduced. The annual saving to the State effected by this new departure they estimated at 70,000 to 80,000 hospital days, an economy equivalent to the cost of keeping a battalion of infantry in hospital for three months. Professor Wassermann made a point of first class importance by insisting that the cerebrospinal fluid of every syphilitic should be examined at least once during the first year after infection for the Wassermann reaction. Positive, prolonged and energetic treatment with "606" and mercury were indicated. He maintained that when once syphilis produced clinical symptoms of cerebrospinal involvement, it could not be eradicated from the system.

The Psychological Conception of Disease.—Arthur J. Brock, in the *Edinburgh Medical Journal,* August, 1913, in discussing the above subject, says in part:

"To give an illustration of my meaning, I may here refer to a view of tumor formation, which I have already developed at some length in two previous papers—I mean to the conception of this process as being fundamentally a 'dissociation of personality.' Numerous observers have been recently coming to realize that the essential standpoint from which cancer cell is to be approached is the developmental or genetic one. This cell becomes only really understandable when considered with reference to the evolution of the stock to which the affected individual belongs. Cancer is seen to be a reversion to a past historical epoch, or, more exactly, it is a failure on the part of certain cells to recapitulate, as they should normally do, the course taken by their ancestors subsequent to that epoch. The cells may be looked on as having 'forgotten' all the more recent racial acquisitions. They have ceased the movement towards increasing individuation, with its correspondingly increasing mutual interdependence, which was manifested by their predecessors. Remaining at a low presocial level, the cancer cells not merely fail to cooperate with the rest of the cells in body building, but, by virtue of the rapacious greed and the reproductive activity which characterize such protozoal or ameboid forms of life, they actually become parasitic upon their neighbors. The same state of affairs is to be seen in certain diseases of the blood, as, *e.g.*, in leukemia, which, in its most malignant forms, is nothing more or less than a 'cancer of the blood.' There is in these cases, as it were, a partial disintegration of the physical personality—a break away of some of the structural elements from the ground plan; it is a failure of what Sir Alfred Pearce Gould calls 'fundamental cell law,' and Mansell Moulin 'the controlling power of hereditary transmission.'

"This view, then, of cancer, which, more than any other, appears to elucidate the subject, postulates the existence in the cell of some sort of 'unconscious memory,' conveying a tradition of ancestral behavior. It seems impossible to suppose that even the minutest description of all the chemical and physical changes involved in the performance of these actions will really help us to 'understand' them any better; the 'psychological' point of view, on the other hand, at once lets in a flood of light on the problem.

"One illustrative example from the nervous field which comes to hand as I write may be here given. At a recent meeting of the Society for Internal Medicine at Berlin a paper was read on 'The Migratory Impulse in Children.' A number of cases were related of children who had left their homes in the city and had wandered, in an apparently aimless way, for long distances. They could give little account of themselves or 'why they did it,' though sometimes unkind treatment at home, or the like, seemed to have had some determining influence. There was obviously a deeper underlying cause, though, apparently, the nearest that the lecturer came to it was to say that certain cases might be 'psychopathic.' The suggestion that these children were reenacting in inappropriate surroundings some important nomadic phase of civilization passed through by their ancestors seems never to have been so much as hinted at. And yet how illuminating such a suggestion seems!"

Accidents occurring after the injection of Antimeningitis Serum are considered by S. Flexner, New York (Journal, A. M. A., Aug. 16), *who says:* That there is no question but that the mortality of the disease has been greatly diminished by the use of the serum and that it is the only effective treatment so far known for the disease. The inconvenient accidents that have been reported should, however, not be ignored. Some physicians of extensive experience have reported none at all, while, on the other hand, in one or two instances their number has been proportionately excessive, and hence the necessity of their critical study. They have been attributed, first, to anaphylaxis; second, to rapid lysis of the meningococci; third, to excessive intracranial pressure; and, fourth, to poisoning by the phenol preservative sometimes contained in the serum. The existence of this last cause is refuted by the occasional occurrence of these accidents, after the use of the Dopter serum, which contains no preservative, and the anaphylaxis theory is excluded by the observations of Dr. Parmalee. The theory of lysis of the meningococci is based on the observations on horses and guinea pigs, and is inadequate to account for most instances observed in man, since it applies, not to the cases in which severe symptoms arose, but to those in which the number of meningococci within the inflammatory exudate has been very small and insufficient to give rise to the insoluble toxins required, or in which the meningitis is due not to the meningococcus, but to the pneumococcus. The remaining explanations, that of increased cerebral pressure, is, in Flexner's opinion, most satisfactory, and the unhappy experiences observed are best explained by it. Koplik early suspected this danger and advised the substitution of the gravity method for that with the syringe. Recently a further safeguard has been introduced by Sophian, who employs the registration of the blood pressure to supply an ocular guide to the injection. It is not always possible, moreover, to attribute serious symptoms, after the injections, to the serum. Sudden death in epidemic meningitis is frequent, and has occurred while the doctor was making his preparations for the injection and before it had been done. The attempt to discredit the antimeningitis serum on the basis of an unfortunate experience seems, therefore, hardly justifiable.

Observations on the Action of Digitalis.—Barton, in the *Maryland Medical Journal,* September, 1913, gives a lengthy report of his finding and summaries as follows:

Historically considered, it is interesting to note that the lately discovered fact that digitalis depresses the conductivity of the bundle of His, thus acting upon the heart by lowering one of the important functions, tends to restore the older view that, essentially considered, digitalis is a sedative much more than a stimulant to the heart.

Physiologically considered, that is to say, upon healthy animals under the conditions of laboratory experiments, digitalis slows the heart through vagus stimulation, increases the force of the systole, diminishes the extent of diastole, constricts the vessels and raises the blood pressure. A depression of the healthy bundle has not unequivocally been made out.

Clinically considered, it is found that beneficial therapeutic effects from digitalis are found almost exclusively in that particular form of cardiopathy which has received the name of auricular fibrillation. In this condition the effects of digitalis are quite marvelous. In auricular fibrillation the bundle of His may be assumed to lie in a condition of pathological excitability and irritability, since normal impulse formation is replaced by impulse formation at multiple auricular foci. The action of digitalis in auricular fibrillation is to depress the function of the bundle of His, and thus to reduce both the formation and the transmission of pathologically formed impulses. Vagus stimulation plays no part in the slowing of the heart, except in nonfibrillating cases. Whether or not the force of ventricular contraction is increased is not known. It is not inconceivable that digitalis may produce a simultaneous depression and stimulation of different parts of the cardiac musculature.

Bone Transplantation.—Chiari has transplanted small pieces of bone marrow into the spleen of a rabbit. The bone marrow retained its vitality and was found to have increased materially in size when the animal was killed five months later.

DeQuervain has treated two cases of total dislocation of the cervical vertebræ by a bone transplant, using a technic much like that of Albee in cases of tuberculosis of the spine, except that he took his graft from the spine of the scapula.

McWilliams, being confronted with the problem of obtaining a bone transplant to fill the gap caused by the removal of the inferior maxilla, excised the curve of the seventh rib subperiosteally and successfully inserted this bone. He obtained an excellent cosmetic result.

Jokoy has been studying the effect of periosteum emulsion as an aid to bone production. His experiments have been carried out in rabbits and dogs. His conclusions are: (1) That autoplastic implantations of an emulsion of small pieces of periosteum causes new formation of bone tissue in most experiments. (2) That mechanical conditions play a great rôle. Thus his negative cases were those in which the periosteum was shrunken or rolled up. (3) In one case, examined seventy days after the injection, there were no signs of resorption of the formed bone, but rather a tendency to further growth. (4) The homoplastic cases were positive, but did not show such a marked formation of new bone as the autoplastic. (5) The heteroplastic cases did not show any formation of new bone. (6) Fresh blood injected with the periosteum did not seem to have any favorable influence on the formation of new bone. (7) Fibrin favors the formation of new bone. (8) Any small pieces of bone by chance injected with the periosteum will be absorbed.

Rest in Tuberculosis.—J. W. Flinn. Prescott, Ariz. (*Journal, A. M. A.*, Aug. 16), says that, in spite of the work of Hilton, Mitchell, etc., physicians have been rather slow to appreciate what rest can do to cure and prevent disease. With the exception of a little work by Norman Bridge and a few scattered papers by others, practically nothing has been written on the important subject of rest in tuberculosis. Though Bridge was, unfortunately, content with mechanical measures, his views were a decidedly marked step in advance, and the revival of the operation of artificial pneumothorax, though its special value is in only a limited field, may help to teach the profession the importance of rest to the lung. Flinn would prescribe it for every tuberculosis case; absolute rest in bed for at least a month, and in most cases for two months, whether there is fever or not. It should be prescribed in definite quantities, guided by the condition of the patient throughout the disease, and when a certain grade of rest does not bring the maximum temperature below 100 F. in two weeks, the next higher grade should be tried. To the objection that each case should be treated individually, he answers that the power to individualize comes only with experience and that the inexperienced should follow general rules and make exceptions only when benefit is not derived. Rest in bed is also a valuable remedy after the lung lesions have become quiescent and the patient is taking active exercise. Two hours absolute rest in bed should be given each patient each afternoon until he returns to his former work. After that, one hour's rest after the noonday meal should be spent on his back, and Sundays should be spent in bed for some months. In many cases a day's rest in the middle of the week is necessary to enable him to attend properly to his work the remaining five days. In spite of all that has been done with other special treatments, the profession should never forget the fact that fresh air, good food and rest are still the essentials in the management of pulmonary tuberculosis.

Scoliosis.—Robert W. Lovett, of Boston, reports at the meeting of The American Orthopedic Association, Washington, May 6-8, 1913, that the term scoliosis dates back much further than the recognition of the affection itself, and was first used by Hippocrates, who lived four centuries before the beginning of the Christian era. Up to 1741 the only real contributions to lateral curvature were made by Paul of Aegina, and Ambroise Pare. Andre was the inventor of the term "ortho," and he wrote more fully of the spinal curve than any of his predecessors. At the time of the American Revolution a very distinct step was made along this line by Percival Pott; but no further work—worth mentioning—was done on scoliosis for about a hundred years.

It is difficult to trace the origin of gymnastic treatment of scoliosis, for it existed from a very early time; and at the beginning of the nineteenth century this treatment began to crowd out apparatus treatment and to absorb most of the attention previously given to mechanical methods. Gymnastic treatment increased in popularity until it constituted the bulk of the treatment in America. Personally, I believe that this is wrong, and that gymnastics are not suited to the treatment of moderate and severe cases of structural scoliosis. In 1902 Wullstein published the results from his method; but that method has been considerably modified. The methods of treating scoliosis to-day differ widely; some men advocate one method, and some another.

The Quantity of Fats Contained in Normal and Pathological Urine.—An exact quantitative estimation of the fats contained in normal and pathological urine has not yet been published. Sakaguchi, in the *Journal of the Tokyo Medical Association,* No. 10, Vol. XXVII, 1913, abstracted in the *Sei-I-Kwai Medical Journal,* Tokyo, Japan, August, 1913, reports having made a quantitative estimation of fats in urine, using Kikuchi's modification of Kumagawa-Sudo's method, with the following conclusions:

The fats in normal urines—those excreted by healthy adults in 24 hours—averaged 0.0085 gram in five cases. The fats increase after ingestion of an excess of fats and after experiments made upon his own urine—ingestion of 223-254 grams of fats—to nearly four times the quantity, or 0.034 gram, per diem.

Fats in the urine of nephritic patients differ; in some cases there is a continuous increase or no change; in others, only a temporary increase.

The increase of fats in the urine of nephritic patients is chiefly from the blood—the fats of food—only a small part being derived from epithelium undergoing fatty degeneration.

There is no increase of fats in the urine of those suffering from diabetes mellitus, pulmonary tuberculosis, jaundice or cirrhosis of the liver.

The author found a positive increase of fats in the urine in one out of five cases of fracture of bone, contrary to the report of Scriba, who declares that there is an increase in every case of fracture.

Intestinal Sand.—F. B. Talbot, Boston (*Journal, A. M. A.*, July 26), gives the history of intestinal sand as given in medical literature, and notices the claim of Myer and Cook that it is produced by the eating of bananas. He has examined many hundreds of stools and has met with only two cases, and in both of these the patients denied having eaten bananas within several months. He gives the gross appearances, which are those of brown sand like particles, intimately mixed with the feces, and, when separated, gritty to the touch. Under microscope it appeared of two kinds, one colorless and resembling calcium or magnesium phosphate and the other irregular or oval, sometimes crystalline and sometimes smooth, varying in color from yellow to a deep claret red. The chemical findings are given and also the characteristics as regards solubility and reaction to tests, which agrees with those of other observers in general. In the case reported—that of a child—digestive disturbance accompanying the appearance of the sand and some symptoms of hip joint disease for a while. Diet seemed to have no effect on the condition, and no connection could be found of the appearance of the sand to any other fruit or vegetable. It would appear, therefore, that the banana is not necessarily the cause. It is impossible to say whether the sand bears any etiologic relation to the intestinal or joint symptoms, or whether or not it is of any diagnostic importance.

Serodiagnosis of Pregnancy.—H. Schwartz, St. Louis (*Journal, A. M. A.*, Aug. 16), sketches the underlying principles of Abderhalden's work on cell metabolism, and reports his own experience with his methods of serodiagnosis of pregnancy. His own experience with these tests is, he says, still limited to the dialyzation method, the optic method has not yet been fully mastered, and he expects to have similar difficulties in accomplishing this as he has had in those he has already met with. Some of his failures were when he was using the biuret reaction exclusively, and were due to carrying digestion too far, and since using the ninhydrin reaction he has obtained some positive results in nonpregnant cases from using too large quantities of serum. At times bacterial growths, unclean glassware, leaky dialyzers and improperly prepared albumin have given him trouble, but discovering and locating these errors he considers a most valuable experience. On the other hand, he refers to a number of instances where the reaction has been most valuable. "In eight cases the serodiagnosis has been employed as the only means of differential diagnosis, and in every one of these eight cases its answers have been true." The method, he says, aside from its diagnostic value, opens up a wonderful field for the serologic study of pregnancy, and may possibly lead to a rational serotherapy of the toxemias, including eclampsia, through the mobilization of the protective ferments.

Acidosis—Endogenous and Exogenous Types.—Allen Eustis, in the *New Orleans Medical and Surgical Journal,* September, 1913, summarizes his studies as follows:

1. Acidosis should be regarded as either endogenous or exogenous, the absorption of intestinal alkaloids from the putrefaction of proteid material playing an important part in the causation of the latter type.

2. Acetone, diacetic acid and betaoxybutyric acid are only partly responsible for the symptoms of acidosis; parahydroxyphenylacetic acid and other organic acids probably also exerting their influence.

3. Determination of the ammonia coefficient of the urine is necessary to ascertain an accurate knowledge of the degree of acidosis.

4. There is a distinct acidosis in adults due to faulty liver function and absorption of intestinal poisons, which can develop coma and prove fatal, but in which there is no diabetes or uremia present.

5. Treatment of these conditions should be based upon a knowledge of the physiology of nutrition and upon a thorough study of the individual case.

6. As a general rule, the indications in treatment should be (a) neutralization of the acids present, (b) free catharsis, (c) abstinence from proteid and fats, (d) abundant carbohydrates and water.

Liquid Petroleum to Prevent Abdominal Adhesions—"Postoperative Intestinal Stasis" and the Intraabdominal Use of Oil.—This measure has been known to surgeons for over two years and was suggested by Dr. D. P. D. Wilkie, at the meeting of the British Medical Association in 1911, as a means of preventing the formations of adhesions in acute septic peritonitis. Dr. Burrows held that, apart from the gross complications which might occur after an abdominal operation, there were sometimes symptoms of obstruction which, he thought, were associated with regional or segmental gut spasm. This spasm occurred mostly in the small intestine, and probably it could be referred to more or less minute traumatism arising in the manipulations of the operation. The evil effects of these abrasions could be combated by pouring about 6 or 8 ounces of "oleum petrolatum" into the abdominal cavity, so that a coating of oil would prevent adhesions and promote the normal peristaltic movements. He had carried out a series of experiments to show the harmlessness and value of neutral mineral oil so used.

—*Journal, American Medical Association*, Sept. 6, 1913: Report, International Medical Congress, London, Aug. 6-12, 1913.

High Bloodpressure.—Edgecombe, *Proceedings, Royal Society of Medicine*, presents the following summary of his experiences (*Medical Record*, Aug. 2, 1913): The measurement of bloodpressure by the mercurial manometer is, on the whole, reliable, and furnishes a useful clinical guide. There is a condition of functional or neurotic high pressure not due to arteriosclerosis and distinguishable from hyperpiesis. In the majority of cases of functional high bloodpressure, direct treatment is unnecessary and may be harmful. Functional high bloodpressure does not rapidly lead to arteriosclerosis. The significance of high bloodpressure as a symptom is less serious than is usually supposed. The treatment of early cases of hyperpiesis is imperative and usually satisfactory. Spa treatment gives the best results. The treatment of developed arteriosclerosis is unsatisfactory and should be mainly by general measures and periodic spa treatment rather than by drugs. Excess of treatment may be harmful as liable to accelerate cardiac defeat. The prognosis in cases of high bloodpressure is less gloomy than usually considered.

Oatmeal in Diabetes Mellitus.—Joslin, *Boston Medical and Surgical Journal,* Sept. 4, 1913, declares that oatmeal is the most satisfactory of the carbohydrates which one can give to a diabetic patient. This is partly due to its physical form, thus a tablespoonful of cooked oatmeal contains only 6 grams of carbohydrate, yet with it one can give a large quantity of cream, or, if desired, of butter, and thus supply the patient with fat in a most agreeable form. Far more fat can be easily introduced into the diet by the use of oatmeal than in almost any other way. Furthermore, one or two tablespoonfuls of oatmeal at breakfast solves the diabetic breakfast problem, because the balance of the meal can easily be made up of coffee, bacon and eggs. It is a great advantage for a diabetic patient to have a meal concerning which there need be no thought. His attention is sufficiently directed toward planning the diet by the remaining meals.

Cholecystectomy vs. Cholecystostomy.—In a very interesting article by George W. Crile in *The Cleveland Medical Journal,* July, 1913, on the above subject he arrives at the following conclusions: Considering all the consequences of infection, cholecystectomy in the type of cases indicated shows a morbidity and a mortality lower than cholecystostomy. In these cases the clinical results of cholecystectomy are good; while in unsuitable cases, cholecystostomy is followed by recurrent cholecystitis.

I have seen no adverse effects from cholecystectomy, provided that the division is made at the beginning of the cystic duct; that no gall bladder tissue is left; and that the division does not at all encroach on the common duct. This technic can be readily carried out.

If acute infection be present, then in most cases cholecystostomy should be first performed, followed, if required, by a later cholecystectomy.

Finally, if the gall bladder and the cystic duct are approximately normal, then the gall bladder is left, cholecystostomy being the operation of choice. If the gall bladder is thick, contains much scar tissue, is shrunken, shows chronic infection; if the musculature is much impaired; if the cystic duct is partially or completely strictured; or if a stone is impacted in the duct; then cholecystectomy is made.

COMMUNICATION

THE TREATMENT OF BRONCHITIS BY AUTOTHERAPY

By Charles H. Duncan
New York

To the Editor:

I desire to report the following case:

Patient, a female nursing baby, aged ten months, was presented for treatment September 18, 1913, suffering from a severe bronchitis. There seemed also to be present a rhinitis, for mucus flowed quite freely from the nose. The condition had persisted for about ten days.

Treatment.—The mother was instructed to collect during the morning, upon small pledgets of cotton, as much as possible of the mucous flow from the nose, and to place the pledgets in a bottle and bring them to the office. There were about twenty pieces in an ounce bottle. The bottle was filled with water and allowed to stand, with occasional agitation, for twenty-four hours, after which time the contents was expressed and filtered. Two cubic centimeters were then injected subcutaneously into the mother, and a drachm was given to her by mouth. The mother said she had a headache the next day and was slightly feverish. The cutaneous reaction was about the size of the palm of the hand. In forty-eight hours after the injection, however, the baby was distinctly better and progressively recovered without any other medication.

The baby had received the unmodified antitoxins to its own toxins, developed by the mother and passed to the child through the mother's milk. As the very young can develop but little resistance to many pathogenic microorganisms, this is the most natural and scientific method at our disposal in the treatment of infections in infants. A close observer of animals will discover, in the dog and cat family, that the mother constantly licks any and all discharges that come from the body of the young. She seems constantly to be employed in this loving, watchful care; and in the colitides, bronchitides, sore eyes, etc., that often develop in the very young, she, by this practice, quickly elaborates in her body antitoxins to the toxins of the microorganisms pathogenically active in her offspring. These antitoxins, transmitted to the young, cure not only the one diseased, but immunize all the others against the bacterial infections in question. Following out this line of thought, we are forced to conclude: Since antitoxins of commerce are developed in animals, if a cow, she goat or other female mammal be injected with toxins from which a given patient suffers (*e.g.*, a bronchitis, enterocolitis or purulent infection), the injected animal should develop antitoxins to the toxins present in the patient. The patient drinking the milk of such an immunized animal would thus receive substances antidotal to the toxins active in his own body, and this, too, without extra tax upon his strength or danger of calling forth anaphylaxis. The patient is thus cured in the easiest and quickest manner, for there will be no systemic disturbances, such as rise in temperature, chill, headache, fever, etc. The practitioner can do this without the aid of the laboratory. Every one may have an animal to withstand the strain incident to the development of substances directly antagonistic to the disease or toxins in a given case. Possibly, the animal may be one that is most convenient, such as the mare, the cow or the goat. All that is necessary is to collect the discharge from the patient's body, filter it through porcelain and inject the filtrate subcutaneously into the animal. After the development of passive immunity, the animal's milk is then given the patient to drink. A healthy lactating woman would be ideal for this purpose, but the danger of infection from women who previously may have contracted some disease might be a factor militating against the general adoption of this agency. Also the blood of the animal bearing the burden of the disease in question may be either drunk, or filtered through a porcelain (Berkefeld) filter and the filtrate hypodermically injected.

The writer is developing this method of curing disease in the infant by observing dumb animals cure their young, and this is but a step to the human mother and the care of her young. A remarkable feature in this conception is that few mothers would not, at least as a last resort, cure their babies, no matter what the cost might be to preconceived ideas. One said she would gladly do it if necessary, but would not boast about it to others; that there was nothing about her baby that was revolting or abhorrent to her. It was part of her body; it came from her body; she nourished it with her own body, and why should she not cure it in the same way?

The mother would rarely be called upon to lick the moist gangrene of the umbilical stump, or the palatine ulcerations of the new born, or to taste the pathogenic discharges from the colon, or the mucus from the nose, or pus from the eyes; for the physician is usually at hand to administer the more elegant preparation: the filtrate in the manner suggested. The life of an heir means much at times, both to the present generation and to posterity; it always means much to the mother. In such cases no power within the scope of human endeavor would be overlooked to save the life of the offspring; anything that would do this would be frantically welcomed. To be sure, other means often cure these conditions, but the method here presented appears to be a very certain cure in many maladies if the treatment is not too long withheld. At times the wet-nurse may be employed to develop immunity to the pathogenic micro-organisms infecting the infant.

Enough has been said to indicate that no mother, in the true meaning of the word, would hesitate to take these discharges if she could be convinced it would save the life of her baby. Should a physician hesitate to give effective medication simply because it is not esthetic or palatable? This treatment may be employed according to the physician's ideas of the subject. Undoubtedly, some will employ it as a matter of routine; others may adopt the usual methods of treatment and when necessary inject the filtrate into the mother or even the child; others, again, may use it only as a last resort, or where the discharge is insufficient to warrant extracting the toxins. Furthermore, the case may be urgent and time the all important factor. From a therapeutic standpoint, the natural method of licking the discharges is quicker and more certain in action than filtering and injecting the toxins into the mother.

Heretofore we have been imperfectly imitating natural cures, and long since have recognized our present day vaccine methods to be faulty. Autotherapy is a step in advance of vaccinetherapy. This natural method of curing the young has stood the test of time, and there is less possibility of error than with the simple method (the outcome of autotherapy) the writer suggests in curing the case cited. If the physician desires to employ the pathogenic exudate or discharge without the mother's knowledge, it may often be prescribed without detection in a little unfermented grape juice or upon a lump of sugar. As far as is known at the present time, there will by this means be no impairment of the therapeutic effect.

THERAPEUTIC PROGRESS

Use of Opium in Gangrene.—George W. Gay (*Therap. Gaz.*, July, 1913) says that whatever may be the cause of gangrene, whether it be arteriosclerosis, atheroma, diabetes, thrombosis, embolism, etc., the indications for treatment are to stimulate the circulation and to increase the nutrition by supplying the tissues with a larger amount of pure arterial blood. For the attainment of these objects the most efficient drug is opium. It relieves pain and quiets restlessness. It is a tonic to the heart and blood vessels. It supports the nervous system. Used properly, it produces a calm, even sense of comfort and contentment. It stimulates the circulation and thereby increases nutrition of the extremities to a much greater extent than any other agent known to the author. For these cases opium is considered preferable to any of its derivatives, the deodorized or simple tincture being employed in the same manner as in malignant and incurable diseases.

Nitroglycerin.—Cornwall, *Journal American Medical Association*, July 12, 1913, states that nitroglycerin can be used to lower general high blood pressure which threatens accidents to the cardiovascular apparatus, but that it has not the superlative value in this class of cases that it has in those in which the symptoms are due to localized arteriosclerosis, or arterial spasm. Aconite and veratrum often serve better in these cases, especially if the myocardium is in fairly good condition. The quickest and most effective means of lowering the blood pressure when it threatens injury to the cardiovascular apparatus is venesection; and the one which keeps the blood pressure down for the longest periods is regulation of the diet.

Brine Baths for Children.—Schkarin and Kufajeff, *Zeitschrift für Kinderheilkunde*, June 28, 1913, state that brine baths have long been used with good effect in the treatment of scrofulous, rachitic and poorly nourished children and those with the lymphatic constitution, the benefit being attributed to stimulation of the circulation and perspiration and to increased oxidation. They give tables showing the effect on nitrogen metabolism in five cases before, during and after the baths. The nitrogen output was increased during the baths and decreased afterward. It is only in cases where this occurs that the baths are beneficial. If the child is so debilitated that the nitrogen absorption is not increased after the baths, the treatment is too vigorous to be of benefit.

Amino-acids and Sugars in Rectal Feeding.—Short and Bywaters, *British Medical Journal*, June 28, 1913, conclude in an article on this subject from an elaborate series of experiments that the best nutrient enema consists of milk, pancreatized for twenty-four hours with 5 per cent. pure glucose Fat is, they say, absorbed. To prepare this enema, one half ounce of some reliable pancreatic fluid or four pancreatic tablets are added to one and one half pints of milk, which has been boiled and cooled. Keep in incubator for twenty four hours, add one and one half ounces of pure dextrose Give five ounces every four hours, or if the patient can retain it, ten ounces every eight hours.

Iodostarin.—A new iodide preparation, iodostarin, has been recently marketed, and Stumpke has used it with excellent results in cases of secondary and tertiary syphilis where mercury and salvarsan have not proved efficacious (*Münchener Medizinische Wochenschrift,* July 8, 1913). By giving the remedy in cases of tabes, he received the impression that the course of the disease was milder. It is valuable as a preparatory treatment in syphilitic endarteritis of the base of the brain to prevent too marked a reaction from subsequent mercury and salvarsan treatment. He believes that it fulfils the purpose of any iodine salt and that it is easily taken while toxic symptoms are practically lacking.

Sugar as a Dressing for Cancer.—Berczeller, *Zentralblatt für Gynäkologie,* June 7, 1913, declares that the benefit from sugar applications is surprising, especially with cancer of the uterine cervix. The speculum is filled half full of powdered sugar, which is applied directly to the lesion every day or two or three times a week. It is excellent to prepare the field for an operation or to clear up inoperable growths. The bad odors and discharges dry up at once and there is less bleeding.

Antityphoid Vaccine.—Hunt, *American Journal of Medical Science,* June, 1913, concludes from studies made in one epidemic indicate, the little value antityphoid vaccine has in limiting the number of cases and in modifying the process in the individual cases. It would seem since antityphoid serum confers relatively a more immediate and fairly strong immunity, that a serum would be of some advantage during such an epidemic. The use of vaccine should be, he thinks, limited to those not already infected; that is, to prevent secondary cases. To this end the individual history and diagnosis by culture would determine its use.

Phosphorus in Diseases of the Lungs.—Lemon, *New York Medical Journal,* August 16, 1913, has used phosphorus with good results in all kinds of lung conditions during the past eleven years. He has found it especially valuable in acute bronchitis and pneumonia and in phthisis. Not only the lung condition, but the patient's general resistance showed improvement. He suggests that tendency toward tuberculosis may be due to lack of phosphorus in the nervous and other tissues of the patient.

The Possibilities of Transfusion in Gastric and Intestinal Ulcers.—Bernheim, *Journal American Medical Association,* July 26, 1913, believes that many cases of gastric and intestinal ulcers would recover more rapidly and completely if transfusion were done. He believes that we cannot expect an exsanguinated person to heal an old ulcer, even if gastroenterostomy has relieved irritation. Bernheim also urges earlier employment of transfusion in the anemias and in many low grade but long standing infections.

Progress in Antityphoid Vaccination in 1912.—Russell, *Journal of the American Medical Association,* August 30, 1913, pronounces antityphoid vaccination a success in the army and navy, in hospitals, institutions and pleasure camps and urges its more general use in all civil life.

MISCELLANY

IS CIVILIZATION DECADENT?

It is not to be doubted that conditions of life, both in our large cities and, in a different though possibly not in less degree, in rural communities, show many tendencies toward decadence. (*Boston Medical and Surgical Journal,* September 4, 1913.) We should not, however, too readily assume that the situation is greatly different from what it has been at various other epochs of productive civilization. That changes and readjustments are inevitable no one will be inclined to deny, but that the world and its people as a whole are degenerating we should not be too ready to admit. For example, in the matter of the supposed increase of insanity and defect in general, conclusions should be drawn with much conservatism. Not only through improved hospital care are such persons made to live very much longer than heretofore, but it is also true that the increased interest and attention being given to these matters has placed a somewhat false emphasis, certainly in the popular mind, upon their extent. It may even be doubted whether insanity is greatly on the increase, and in fact certain statistics seem to contradict this view. The interest, however, which people at large, both lay and medical, are taking in these matters is evident on every hand, and in the midst of all the excitement and discussion it is peculiarly desirable to maintain a judicial attitude and view the problems now so prominent in the public mind with calmness and optimism. If civilization is to blame, the solution of existing evils must lie deep down in the social fabric, and it would be well in much of the existing superficial discussion to bear this fundamental fact in mind. To effect cures of the various social evils we must be sure that we have found the causes.

THE LURE OF THE NURSE

The editor of a Southern newspaper looks at it in this way: "Millionaire's son elopes with a trained nurse." It is getting to be a familiar headline. And not millionaire sons alone, but the millionaires themselves, and statesmen and learned pundits, are taking spouses from the ranks of the nursing sisterhood.

In the great majority of cases, says the *Hospital*, it is the wisest choice that the man could make. There are the best of reasons for the lure of the nurse. Woman's progress along the path of enlightenment and honor, her advancement to the position of an equal and companion in life, has not made her any the less a ministering angel. On the contrary, science and emancipation have given to man, in the person of the trained nurse, a better ministering angel than he ever had before.

The aching brain of man, his feverish brow, and still more particularly his disordered stomach, crave the ministering angel still. As a companion and a helpmate, woman is all the more valuable if she knows how to put a man right when he feels "seedy" and worn. The nurse's training makes a woman patient and steady. (And heaven knows that a wife needs to be patient and steady nowadays.)

The trained nurse, turned wife, is not, to be sure, of the clinging vine type. She does not lean on a man when he is unable to hold himself up. She never contributes her hysteria to his brain fag. She is self reliant, self contained. And in this age that is what man wants woman to be.

There is absolutely no mystery in the prevailing tendency of men to carry off the best trained nurse they can find. We may even contemplate the possibility of a completely eugenic epoch when every bride, along with her marriage certificate, will be called upon to produce her hospital diploma.

THE EXCLUSION OF IMMIGRANTS AFFECTED WITH DISEASE OF THE SKIN

In discussing a paper on the above subject by L. Duncan Bulkley, New York, read at the thirty-seventh annual meeting of the American Academy of Medicine, June 1, 1913, *Bulletin of the American Academy of Medicine,* August, 1913, Mrs. Florence Kelley, New York, said:

"I was impressed with one parenthetical expression, that 'we cannot afford to have the Austrian music if we must take as its accompaniment the spectacle of the barefoot woman worker.' My mind has been burdened with the question: 'Why is it that the barefoot woman worker in the United States is not the immigrant, but the native American woman of several generations, employed by the native American employer in that part of the country in which there is no immigration whatever?' This is among the cotton mill workers of Georgia, North and South Carolina, among whom there are no Negroes or immigrants employed. When Henry James came back to this country after twenty years in England he wrote amusingly of the good shoes and the good dentistry that he saw everywhere. He missed the broken shoes and the 'snags, tusks and fangs' to which he was accustomed. He was in the cities in which the immigrants settle, New York, Boston, Philadelphia. He did not go South. The barefoot woman worker is our American product.

"With regard to illiteracy, why is it that the Commissioners of Education of New York and of the Federal Government unite in reiterating this statement that illiteracy is also our native product? We have good labor laws where the immigrants are thick. Georgia, which has virtually no immigrants, has no restriction on the employment of American children in mills. The same has been true of South Carolina, though the conditions are a little better now. North Carolina has no compulsory education, nor are any of the requirements enforced for the protection of working children. The fact remains that our illiteracy is where our immigrants are not. Our child labor legislation is either missing or bad where our immigrants are not. Why is that?"

PLANT NOURISHMENT

If one will closely observe window plants, it will be seen that they incline towards the glass in such a way as to present the broad upper surfaces of the leaves to the strongest light. In fact, the whole plant appears to seek direct exposure to the sun's rays. The following interesting experiment will show which parts of the plant are most sensitive: Bind such stems as are turned from the window with tinfoil, and it will be found on the next day following that the stem or whole plant will be turned back towards the light. This simple experiment will prove that the sensitive part of the plant is in the leaves, or parts other than the stem, and that the attraction is great enough to incline or bend the whole plant. The same reaction to light will follow if the flowers are covered with black paper, again proving conclusively that the reaction is through the leaves. The broad surface of the leaf or blade spreads out an expanse of the green chlorophyl containing tissue, which is very sensitive to the sun's rays, making the rays available for chemical action on the chlorophyl. But it is the leaf alone which is sensitive, as is shown when it is inclosed in black paper, when it does not change position. The same action takes place when plants are placed in a cellar which has windows through which light can pass. If the windows are on but one side of the cellar, it will be found that all the plants will incline towards the light from that side.

If sections of the leaves are examined through a microscope, it will be found that the epidermis or outer cells are convex, making numerous lenses, whose purpose is to converge the rays of light upon the inner surface of the cells when the chemical action or building up of food material goes on, thus representing work in the laboratory where a synthesis takes place, producing food for the growth of the plant. Each cell may be compared to a room with floor and lateral walls made up of like cells. If the upper surface of the cells, which we may compare to a skylight, cannot for some reason be brought into right angles with the laboratory (the floor), the lateral cells are so sensitive that the position of the plant is changed to allow the sun's rays to pass through the convex cells into the floor, and thus the mechanism of plant growth is sure to proceed. And in this change of position the whole plant participates, in order that as many leaves may be exposed as possible, and thus the greatest nourishment be secured.

THE PREVAILING STYLE OF WOMEN'S DRESS

In a letter to the Editor of the *Medical Press and Circular*, the writer says:

"Sir:—Women have their rights—some belong to them, some they assume. One of the latter is that of having the last word in an argument. Up to the present 'mere man' has, no doubt, been highly entertained by this discussion, in which he has not ventured to join. But braving the presumption of breaking the spell, I am audacious enough to believe that 'mere man,' with all deference to his sisters, is still entitled to express his views upon the subject.

First, women must admit that their fashions in dress are always matters of extremes. In early Victorian days women did everything possible to conceal the fact that they were bipeds, by enveloping their bodies in skirts and petticoats balloonly distended with crinolines. Then, many of us can remember the days of that curious supplement to their anatomy, technically named the 'bustle.' This was succeeded by a remarkable contrivance, constructed in the form of a wire cage, known as the 'improver.' This waggled about from side to side as they walked, and so left the true anatomy of their proportions to nebulous speculation. We all know what since has followed. The present fashion—it will not stay—is to reveal every lineament of a woman's figure—just the very opposite of that which the fashion of the crinoline subserved. 'Mere man' looks on, is amused, and wonders what next will happen. His susceptibilities are hardened enough to believe that if a woman is persuaded that her gluteal muscles are of shapely proportions, she is entitled to exercise her right of letting every one see how they contract if she likes. The only point in the case is the extreme of her decision which fashion has dictated. But fashion is no respecter of persons, and so women generally dress alike—and their dress is designed by no means for the benefit of 'mere man' alone, but in a large measure to compete, for attraction, among themselves. This nudity craze, therefore, had better be left to settle itself—just as the crinoline monstrosity did—and the hirsute appendage, that Victorian abnormality, the chignon, which often seemed ponderable enough to give a woman's head a posterior 'list.' After the public exhibition of the lineaments of their figures women will doubtless turn their attention to the last resource of their natural gifts—namely their hair. In the near future we may expect to see a neat development of fashion in this direction. The hair may come to be worn in all its pristine and attractive beauty, compelling admiration. despite the elevation of prudish fans employed to conceal the dazzle of its adornment. This letter may appear too cynical in respect to women's foibles, but it is not intended to be so. Logically, we must admit that if Nature has designed woman intentionally with an eye to artistic effect—and this we may believe—it is not curious that a woman should refuse to hide her talents under a crinoline or anything else to which the law does not object.

"DOCTOR'S WIFE'S HUSBAND."

FREE DISTRIBUTION OF DIPHTHERIA ANTITOXIN

Commissioner Lederle is sending the following notice to physicians in the Borough of Manhattan:

"It is the firm conviction and belief of the Department of Health that, if every case of diphtheria in New York City received five thousand units of antitoxin on the first day of the disease, the number of deaths from this cause—now entirely too high—would be markedly diminished.

"To further this end, the Department of Health of the City of New York announces that, beginning Sept. 1, 1913, it will whenever necessary, between the hours of 9 A. M. and 3 P. M., deliver prompt and free of charge, to any address in Manhattan, antitoxin for the treatment of diphtheria, provided that:

"1. Request be made to the Department of Health.

"2. The person receiving the antitoxin signs a receipt therefor, containing a statement that the patient (or legal guardian) is unable to pay for same.

"The above offer is for a limited period only. If physicians avail themselves of it in sufficient numbers, the procedure will be extended to all boroughs and made permanent.

"The antitoxin will be furnished in syringe containers, ready for immediate use. The empty or unused syringes will be collected by the Department of Health the following day."

GENTLENESS IN SURGERY

The fact that some operators produce little constitutional disturbance, little shock, by the performance of an operation which, at the hands of another, causes very serious collapse, is not due to differences in the patient, in the anesthetist, in the method, or in anything else, but the surgeon himself, says Sir Berkeley Moynihan, Address in Surgery, Brit. Med. Assn., 1913. There are surgeons who operate on the "canine" principle of savage attack, and the biting and tearing of tissues are terrible to witness. These are they who operate with one eye on the clock, and who judge the beauty of any procedure by the fewness of the minutes which it has taken to complete. There are other surgeons who believe in the "light hand," who use the utmost gentleness, and who deal lovingly with every tissue that they touch. The former type of operator is described by Crile as "carnivorous"; the latter type is nowhere better exhibited than in his own work. The scalpel is, indeed, an instrument of most precious use—in some hands a royal scepter; in others but a rude mattock. The perfect surgeon must have the "heart of a lion and the hand of a lady"; never the claws of a lion and the heart of a sheep.

NO SUBSTITUTES, PLEASE

It is an ingenious suggestion from the Department of Agriculture that the householder who finds he can't afford beefsteak should substitute for it the toothsome and succulent guinea pig, either baked, fried or fricasseed. If he did, he'd probably be glad he made the substitution—once or twice, anyhow. But it is to be predicted that he won't. The guinea pig labors under the disadvantage of having been found available for so many medical and surgical experiments that the great eating public can be trusted to maintain its prejudice against it as an article of food.

The initiated—mostly country born and bred—know the delights of rabbit or squirrel potpie. A few know that muskrat, in a pie or fried like chicken à la Maryland, is a dainty tidbit But they'll never go far toward reducing the cost of living. The common sparrow, broiled, is said to equal the reed-bird, but it isn't figuring in the market reports yet. The real trouble seems to be that the American likes his beefsteaks and roast beef, his saddle of lamb and his lamb chops, and he wants what he wants when he wants it.

BOOK REVIEWS

The Diseases of Children. By Henry Enos Tuley, M.D., Late Professor of Obstetrics, University of Louisville, Medical Department. With one hundred and six Engravings and three Colored Plates. Second Revised Edition. St. Louis: C. V. Mosby Company, 1913.

It is quite plain that this work was written for the student and general practitioner and not for the specialist, and this very fact should make it popular. The time honored introductory chapter is omitted, the author proceeding at once to building up a book which shall prove interesting and useful from the first chapter, Anatomy of the Infant, which should prove an instructive remembrance of that highly essential necessity which most of us are more or less apt to forget. Dr. Tuley carries us along in proper sequence to diseases and injuries of the new born, growth and development, methods of examination, therapeutics of infancy and childhood, infant feeding—which, by the way, is a most valuable chapter—diseases of the nose, throat and pharynx, of the ear, eye, respiratory tract, digestive system, general diseases, contagious diseases, diseases of the circulatory system, of the blood, glands, genitourinary system, nutritional disorders of the nervous system, skin and an appendix, altogether some six hundred pages, copiously illustrated. There are three colored plates which reflect credit upon the publishers.

After carefully looking over this work we conclude that the author has accomplished his purpose to write a book suitable for the student and general practitioner. One important omission, however, must be noted, stenosis of the larynx in the infant with advice for intubation and other forms of treatment. A number of these cases are encountered which can be successfully treated by the specialist, but which because of failure of diagnosis are not properly treated by the physician remote from hospitals. We refer to thyroid enlargement and other conditions than acute catarrhal laryngitis, diphtheria. It is a most distressful condition, which should be more fully discussed, giving technic for inserting the tube, which is probably the only measure for relief.

Dr. Tuley's work will be found most useful.

General Medicine. By Frank Billings, M.S., M.D., and J. H. Saulisbury, A.M., M.D., being Volume VI of the Practical Medicine Series for 1913. Published by The Year Book Publishers, Chicago.

We take it that the medical profession generally are well acquainted with this series, which have been issued for a number of years. They cover all of medicine, surgery and the various collateral branches of medicine proper; are abstracts or epitomes of current medical literature, so written and arranged as to be of the greatest practical value to the general practitioner for ready reference. The volumes are handsomely printed and bound.

Stories of Doctors, for Doctors, by a Doctor. By Dr. W. T. Bertrand. Boston: The Roxburg Publishing Company.

This book purports being a collection of stories told to one another by some seven physicians while on a fishing excursion. Aside from inaccuracies in quotation, in declaring General Sheridan's horse Winchester a black horse, and the startling statement that one of the party, Dr. Munroe, was thirty three years old at the time the trip was made (1900) and that he was a surgeon in the Canadian Riel Rebellion in 1885, the reading of the experiences as related by the several physicians will prove entertaining.

PAMPHLETS AND REPRINTS

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA AND ON THE NATIONAL FORMULARY, FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1911. By Murray Galt Motter and Martin I. Wilbert. Government Printing Office, Washington, 1913.

This volume contains a Digest of Comments on Official Standards of the Pharmacopeia and the National Formulary. It is the third of the series and includes reference to the various articles included in these works, taken from current medical and pharmaceutical journals. No doubt that these comments will largely influence the make up of the next pharmacopeia.

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ORIGINAL ARTICLES

THE POSITIVE ASPECT OF EUGENICS*

By Sir James Barr, M.D., LL.D.

Consulting Physician Liverpool Royal Infirmary

In a sermon at the recent International Medical Congress the Dean of St. Paul's (Dr. Inge) said: "The human race at present is a mere caricature of what it may be in the distant future, if science is allowed to pursue her beneficent course unchecked by that false kind of humanitarianism which is kind only to be cruel. Intellectual and moral improvement will be as great as physical; the race will make a long stride forwards towards the perfect man. All this may be; we cannot say that it must be. There is no law of progress; all will have to be done by purposive effort. The most inspiring faith of our day is the confident belief that purposive effort, guided by expert knowledge, may achieve great things for the human race."

This points the way to Positive Eugenics, which may well form a text for my remarks today. It is extremely gratifying to see the prominent position taken by leading members of the Anglican Church in the Eugenic movement; there is a slow but sure evolution going on in theological thought as well as in the more materialistic aspect of the universe, and with the higher cultivation of the moral and intellectual characteristics of the human race it will be found that the perfect man is not a mere personification of brute force. The science of Eugenics has the positive aspect of encouraging the multiplication of the morally, intellectually, and physically fit, and the negative aspect of preventing further degeneration by discouraging or preventing the multiplication of the unfit. There can be no doubt that the positive aspect is the more valuable because it would raise the race to a higher plane, while the negative aspect would merely prevent the race sinking to a lower level. Even the latter, if widely and wisely exercised, would be a great point gained.

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*An address delivered at the Sheffield University Sociological Society on October 7, 1913.

and could be easily attained if society would only wake up to a sense of its enormous responsibilities.

If we only stopped the reproduction of the unfit, the fit would then be able to look after themselves, and the selective evolution of the race would go on rapidly. It is not now a question of the survival of the fittest. Your industrious, independent, hard working man who is taxed to support the loafer, the wastrel, the pauper, the criminal, and the progeny of the degenerate does not live to eke out an existence with an old age pension. It is your miserable degenerate, who is assisted by charity from the cradle to the grave, that often survives the longest. Recently Mr. Justice Ballnache deplored having to pass a sentence of a long term of imprisonment on a man, aged 70, who had already spent 50 years of his life in prison. I suggested that a life of crime is not necessarily a short one, and if this individual had been a hard working honest man he would probably have been dead long ago. Too much sympathy may be easily wasted on individuals of this type, and perhaps permanent detention is the simplest way of dealing with them. Nature, when free to act, weeds out the unfit, but on account of our benevolence and charitable sentimentality the mental and physical weakling has often, in the present day, a better chance of survival than the strong and fit. The degenerates not only survive but they are more prolific than the intellectual, they are not hampered by any economic laws, and they rapidly produce another generation more degenerate than themselves. Nature's method of adapting the individual to the environment, which is the surest method of progress, has been reversed, and we now adapt the environment to the individual—temper the wind to the shorn lamb. The diseases which killed off the weaklings have been more or less successfully combated, and those who would have departed with the consolation that those whom the Lord loves die young, now live to produce a generation even more degenerate than themselves.

We have had recently placed on the statute book a feeble minded Act for the feeble minded, which seems to occupy about the highest flight in the Eugenic movement which the House of Commons is capable of taking. Two or three of our legislators were strongly opposed to the measure, as an undue interference with the liberty of the subject. The Act is a step in the right direction, but I am doubtful that the amount of good which it will do will not be commensurate with the enormous expense which it will entail; owing to the socalled safeguards with which it is hedged, the tendency will be entirely to protect the individuals against and at the expense of the public. It will deal with the idiot, the imbecile, and the lowest type of the feeble minded, all of whom are too degenerate to be prolific, but it will leave untouched the higher types of the feeble minded whose animal passions are strongly developed, and who care nothing for the social fabric or economic pressure. These individuals will keep up an indefinite supply of the feeble minded. So long as the public allow them to procreate, and take care of their progeny, they will allow the morrow to take thought for itself. I do not believe that this Act will lessen the output of the feeble minded by 5 per cent., whereas radical and less expensive measures might lessen the output by 50 to 80 per cent.

There are many quite ready to admit that physical traits are hereditary, but deny that mental characteristics are transmitted. I am frequently asked the question, how is it, if intellectual ability is hereditary, that very great men often have very commonplace sons, and some of my Radical friends frequently hurl the name of the late Right Honorable William Ewart Gladstone at my head, as the best example they can conjure up. This, I think, is very rough on the family and very inconsiderate on the part of my Radical friends. I do not know anything about the family, nor do I know anything about the late Mrs. Gladstone, who had an important share in the production of the family, but I do know that some of the collateral branches of the Gladstone family are far ahead of the average intelligence. What is much more to the point, and this applies equally to other great men who do not produce able sons, the very exceptional greatness of Mr. Gladstone was to a large extent acquired by his indomitable perseverance, and we know from Weismann that acquired characteristics are not transmitted. I do not know of one spark of original genius which he ever exhibited, and his name is not to be mentioned in the same breath with Darwin, Wallace, Kelvin, Crookes, Lister, Lodge, Ramsay and a host of others. You have got to study the innate qualities when you are considering the question of heredity. It takes an enormous number of unit characters to make up a highly intellectual being, and in the segregation of these unit characters they may be derived from the male or female progenitors or from both. Given a complete knowledge of the progenitors and their family history it is as easy to forecast the general characteristics of the unborn child as it is those of a foal.

There is another point which troubles a good many people, how to explain the great mental and physical differences which are often observed among members of the same family. This is no puzzle for the disciples of Mendel. You have only got to probe deeply into the family history and you will find the different characteristics in previous generations. In many families there is often a bad strain latent, and when it crops up it should be eliminated as soon as possible. Clever parents may not always produce clever children, but feeble minded parents never will. There always have been exceptionally able individuals, and it is to be hoped that there always will be men and women who tower intellectually above their fellows. We want to raise as many of these intellectual giants as possible, and this can only be done by proper mating; the environment may improve the individual, but it cannot improve the race. As Weismann says: "There is no evidence to show that the experience of the parents is ever transmitted to the offspring." The germplasm must be pure if you are going to raise a pure breed, otherwise you get mongrels. You cannot gather figs of thistles, nor grapes from thorns. When a judge marries his cook or a young scion of a noble house marries a balletgirl, these female progenitors may have a considerable say in the future of the families, and it will largely depend on their innate qualities whether the breed is improved or not.

Some time ago the editor of a journal asked me to give him my ideas as to the measurements of the perfect man. It was very complimentary to be asked to set up such a standard, but I did not quite like the job, as I felt that all my friends would be left out in the cold, and I would run a great risk of being literally scalped, so I simply replied that I had not come across that variety of the human species, and I did not know what he was going to do with the perfect man when he found him, as such would probably not be fit for this mundane sphere; but in my opinion the mind is the measure of the man.

I felt then that I was on safe ground, as every one would apply his own measure, and would frequently stretch an inch to an ell. You rarely meet with a miserable being who does not think that he has got a gigantic mind. Whenever you preach the doctrine of *mens sana in corpore sano* you constantly get the Apostle Paul and Robert Louis Stevenson and others thrown in your teeth. Personally I do not believe that the man who fought with wild beasts at Ephesus was half so decrepit as some of my religious friends try to make out, in fact, all his doing and writings show marked physical as well as intellectual capacity, and, at any rate, he had the good sense not to leave any little Pauls behind him. Robert Louis Stevenson was a beautiful writer, and many of his epigrams are very fine, but much of his writings will not bear analysis according to the hard rules of facts, and I am convinced that if he had not been phthisical he would have written better and much more sanely. In the segregation of unit characters there is no doubt that high mental attributes are quite compatible with many physical defects, but I think most men will bear me out that a man does his best mental work when in sound physical health. Some years ago I wrote a description of a perfect race, but I used up all the best adjectives in the English language, and it would be impossible to get all these fine qualities centered in any single individual, and, if possible, it would be highly undesirable, as society is very composite, and it would be very incomplete if all were cast in similar molds.

Like breeds like. You have all heard of the celebrated Jukes family in America which was started by the reprobate father of three prostitutes. About 1200 descendants of this man have been traced, consisting of criminals, paupers, lunatics, prostitutes, etc., who cost the United States over one million dollars, and there was not one respectable citizen in the whole 1200. America can boast of another family of a very different type started by the Rev. Jonathan Edwards, D.D., a celebrated divine and metaphysician, who was born at Windsor in the State of Connecticut, October 5, 1703. He entered Yale College in 1716 and took his B.A. degree the following year, and in 1722 was licensed to preach the gospel. Toward the end of 1723 he was appointed a tutor in Yale College, an office which he filled with distinction. In 1726 he became a colleague of his maternal grandfather, the Rev. Mr. Stoddart, in a church at Northampton, and was ordained in February, 1727. He was a prominent figure in the great revival of 1740-41. His great characteristics were depth and comprehensiveness of argument, and among his writings may be specially mentioned "The Freedom of the Will and Original Sin." Calvinism had probably never so powerful a defender, and according to the late Robert Hall he ranks with the brightest luminaries of the Christian Church, not excluding any country or any age since the Apostolic. His son followed in his father's footsteps, and by 1900 there had been 1394 descendants of this great divine. Thirteen of these were presidents, sixty four were professors in universities, one hundred were clergymen, seventy five officers of the army or navy, sixty medical practitioners, an equal number authors, one hundred and eighty judges, advocates, or solicitors, eighty functionaries in the civil service, three senators, one vice-president of the United States, one president of a great navigation company, while many were governors of States, members of Congress, mayors or plenipotentiaries. Thirty three States of the American Union, and ninety two cities, besides several foreign countries profited by the beneficent activity of this family. It is not on record that a single member of it was condemned to any disgraceful penalty.

From America we also get a record from the pen of Mr. Henry Herbert Goddard of two families of opposite type springing from the same male progenitor, to whom, for obvious reasons, he has given a fictitious name—Kallikak.

A Martin Kallikak, descended from a long line of English ancestry, took advantage of a feeble minded girl, the result was a feeble minded son. This son married a normal woman, and they in turn produced five feeble minded and two normal children. From both normal and defective descendants of this union came a long line of defective stock, there were 430 in all. Of these thirty six were illegitimate, thirty three sexually immoral, twenty four confirmed alcoholics, three epileptics, eighty two died in infancy, three were criminals, eight kept houses of ill fame, and one hundred and forty three were distinctly feeble minded, only forty six were found to be apparently normal, the rest were unknown or doubtful. There was not a single instance of exceptional ability. Most of these descendants failed to rise above a dead level of mediocrity, and most of them fell far below the minimum standard.

This Martin Kallikak who started this long line of defective progeny is also responsible for a strain of an entirely different character. After the Revolutionary War he married a Quaker girl of good ancestry, and settled down to a respectable life after the traditions of his forefathers. From this legal union with a normal woman there have been 498 descendants. All these, except two, have been of normal mentality—the exceptions were cases of insanity, presumably inherited from an outside strain in which there was a constitutional psychopathic tendency. In all the 496 there was not a single instance of feeble mindedness. The offsprings descended from this union have all occupied positions in the upper walks of life, they have never been criminals, or ne'er do wells.

The followers of Calvin and John Knox should all be Eugenists, because the teaching of these great men on foreordination and predestination fits in exactly with modern views on inheritance from the germ plasm. The character and ability of men and women are just as much inherited as the shape of their noses or the color of their hair. We are, no doubt, told that man is prone to do evil as the sparks fly upwards, but the ideals of the Eugenists is to get rid of the evil tendencies by a process of artificial selection, and to have the good qualities so ingrained in the germ plasm that there may be in time no regression, but a steady evolution of the higher and nobler nature of man. Eugenists attribute the predestination of the individual to the progenitors, immediate and remote, and do not consider it necessary to go so far back as a Great First Cause.

There are some individuals with superficial views on the laws of inheritance, who are ever ready to lay their misdeeds and misfortunes to the account of their progenitors. With such Calvin and John Knox would have dealt very summarily, and would have told them that now we know you are damned already; the sooner we get rid of you the better; but the Eugenist is much more humane. To such individuals they would say that we know you are not responsible for your appearance on the earth, you had no voice in the selection of your parents, but, now we know that you have inherited some very undesirable qualities, we will keep an eye on you, and prevent you from transmitting those qualities to another generation; so far as you are individually concerned you will be well treated and well cared for, but with you, your breed must come to an end; you will now and forever be denied the privilege of parenthood.

It is entirely a question for society to determine what are to be the limitations of parenthood. It is not advisable to compel a person to become a parent, but it is most assuredly advisable to determine who is not to become a parent. There is at present no encouragement to a virile, healthy, industrious, hard working man to have a large family. If he has, he is oppressed at every turn; he may find it more difficult to get constant employment, and if he is thrown out of work his anxiety is enormously increased; he has not only to support his own family but also to contribute to the support of the maimed, the lame, the halt, and the blind, the criminal, the lunatic, the pauper and the loafer. He has to bear his misfortunes in the solitude of his own family; he gets no sympathy from the Exeter Hall type of Christian, who is imbued with a sickly sentimentality, who has no faith in robust manhood, whose sympathies only go out to the lost sheep, the undesirable alien, or the criminal. Those who produce the physically and mentally unfit commit a crime against society, a crime which will be often repeated until the body politic becomes sufficiently evolved to regulate these matters. We want healthy, vigorous manhood and womanhood; we want men and women who will hold their own in the battle of life with any other nation—we want a nation of stalwarts. This can all be rapidly attained by intelligent artificial selection, and the nation which will produce the finest and most intelligent virile race will win in the long run.

Professor Bateson, in an address on heredity at the International Medical Congress, while approving of the Mental Deficiency Act "as a wise beginning of reform, viewed with disquietude the violent measures that are being adopted in certain parts of the United States. It is one thing to check the reproduction of hopeless defectives but another to organize a wholesale tampering with the structure of the population, such as will follow if any marriage not regarded by officials as Eugenic is liable to prohibition. This measure, we are told, is actually proposed in certain States. Nothing yet ascertained by genetic science justifies such a course, and we may well wonder how genius and the arts will fare in a community constructed according to the ideals of State legislatures." Professor Bateson may possess his soul in peace, there is not much danger of our weak kneed legislators doing anything heroic in this country, and I think genius and the arts are just as likely to flourish in America as here; their progressive legislation is an experiment well worth trying. I quite agree with Professor Bateson that such methods are not well suited for this slowly moving old country, and our progress must largely depend on educating the masses in biological knowledge. In the present state of general ignorance there is no use in appealing to our legislators—I shall not offend their intelligence by calling them statesmen, as statescraft seems remarkable by its absence from the present administration. "The statesman wishes to steer while the politician is satisfied to drift." Very few of our legislators are versed in biological laws, and no one seems to look beyond the present exigencies of political strife.

Recent Socialistic legislation has been very expensive and largely futile so far as accomplishing any real good is concerned; it has merely established a large bureaucracy of useless wastrels who produce nothing but eat up the bread of the people. How long will the honest, hard working, intelligent sons of toil, who after all form the bulk of the electorate, tolerate this insane legislation which is continually encroaching on their liberty, and establishing an army of officials who eat up the fruits of the toil of others. Some time ago I wrote a description of the Englishman which is perhaps worth repeating:

The Englishman is the State donkey who bears his own and other people's burdens without a grumble. He used to be described as a pirate and a land grabber, but those halcyon days have gone for ever. Now he is quite prepared to give a free slice of his territory to any one who will acknowledge him as the ground landlord. He proposes to give to the Irishman Erin's Isle with several millions a year to keep it afloat. I like to prod the animal in the hope that some day he may kick out; perhaps he will when, like Balaam's ass, he sees the sword which is hanging in front of him and ready to dismember him.

Seneca said: "No great genius is ever without some tincture of madness." Hence there are some who would not interfere with the insane in the hope that some day they may breed a genius, but we can get on very well without such a genius. Moreover, the opinion of Seneca will not bear analysis, as no great genius is ever insane except to the dwarfed intellects of his contemporaries. Those who hold this ancient, and in the main ill founded belief do not know what constitutes a genius, they ignorantly mistake eccentricity or uncontrolled and ill regulated mental activities for genius. Feeble minded individuals never produced a genius and never will. There is nothing more fallacious than the ideas of many that the character of the individual depends on the environment; the individual too frequently makes his own environment, but I much admire the man who raises himself above his environment. There is an old saying that God has given us our relatives but thank the Lord we can choose our friends. We do not want a race of hothouse plants, we want a race of men. We want to raise the average physique and intelligence of the community. We want to evolve a higher, nobler, more moral, more intellectual, more vigorous, and more healthy race; one which will not require to be purified by fire and the ravages of disease. Our selective death rate has been largely abolished, and now we wish to establish a selective birth rate. This can only be done by breeding from a pure germplasm. You can develop an intellectual giant, and improve the conditions under which such a one is likely to be produced, but environment will not make one. The environment may improve the individual, but it cannot improve the race.

I am often asked, how can you prevent people falling in love? We do not wish to prevent people falling in love so long as they keep out of the "Slough of Despond." We only wish to prevent them falling into a quagmire, a morass of filth and obscenity. We wish people to study sexual subjects in a scientific spirit, and to recognize their responsibility to the State. We advocate the purest and warmest love between properly mated individuals. But some mawkish sentimentalists talk about love as if they were running a corner in it, or as if they looked upon it as something which you were bound to catch, like many a childish complaint such as the measles. Many of these fools mistake sexual attraction and passion for love, and then when they have been mated for a short time, and the glamour has worn off, they want a divorce. Healthy minded individuals only fall in love with suitable mates and then stick together for life. Unfortunately man is not naturally monogamous like the pigeon, he is more like the barn door fowl. Without mutual admiration and esteem there can be no true love.

A distinguished actress described her son as an accident, and considering the number of such accidents which are constantly occurring I wonder that the race is as good as it is. It has been statistically proved that there are a greater number of defectives among the first born than among later members of families, and on this account some would abolish the law of primogeniture. I believe it has also been found in the case of race horses that the first foals on the average do not show the same capacity for winning races. Of course, in every famliy there must be a first born, and considering the small families of the present day this becomes a serious matter for the human species. However, I am not convinced that this defect, if defect there be, is irremediable. In my opinion these defects are entirely due to the faults of the parents; the worry and anxiety of marriage, and the indiscriminate love making, which frequently follows, does not give the first born a fair chance. When parents begin to recognize the laws of inheritance and their great responsibility in the production of children this state of matters will be put right. Under normal, healthy conditions, apart from accidents at birth, there is no reason that I can see why the first born should not be as good as any which follows. The illegitimate or chance child, the result of strong passion rather than of subdued love, is often an exceptionally able individual. I know Eugenic couples who determine when they are going to have a child; such a child is wanted and is produced under the most favorable conditions, and gets a fair start in life which is frequently not accorded to the haphazard products of ordinary humanity. All antenatal defects should be put right, and we should see that the female pelvis is properly developed. I have a very high opinion of the young women of the present day, they will bear favorable comparison with their mothers and grandmothers, and as a rule are proportionally better developed and less degenerate than the males. A gynecologist has expressed to me a different opinion, as he says he scarcely knows what a healthy woman is like, as he so seldom sees one. These patients of this gentleman should be put right before they are allowed to indulge in the pasttime of procreation. There is no use in bringing children into the world to be a curse to themselves, their parents and the community.

Prince Kropotkin thinks that in this country we should encourage breeding from the lower strata in society, as we require so much manual labor, but even here there surely should be some selective birth rate, as you want to breed for health and physique. There are plenty of hard working, well developed, healthy men and women to maintain a supply for the labor market, but there can be no advantage in allowing the submerged tenth to replenish the population with a race of cowardly hooligans and untutored savages who toil not, neither do they spin, and are certainly devoid of glory.

To elevate and ennoble the race you must encourage individualism, you must encourage the inventive genius to devise labor saving devices. The mechanical operations either of human beings or of machinery must be controlled and guided by intellect. The hod-carrier is a very poor machine compared with a hydraulic or steam crane. Socialism may be of advantage to the lower types of humanity, so long as its unbridled vagaries are allowed to exist, but it must inevitably drag down the race to a lower level. Sir William Ramsay says:

"Socialism under certain conditions ought to do very well. These have long been practised by the ants and the bees. They are:

"(1) Extirpation of unpromising children at birth, and State care of the remainder.

"(2) Removal (by painless means) of all the youth of both sexes who, at a later stage, promise badly.

"(3) Removal, also, of all who cannot work, by euthanasia; and slavery for all those who will not work.

"(4) Careful State supervision of all marriages, only a few persons being permitted to carry on the race.

"(5) Euthanasia for the aged. This, it must be acknowledged, would produce a powerful race. The chances are, however, that it would be extirpated before the experiment had a fair trial. Without some such expedients, however, I do not see how Socialism could work, and, if it spreads, we shall probably see some approach to the restrictions mentioned above."

The minority report on poor law reform contemplates at least one step in this direction.

Professor Arthur Thomson says that: "Man has shaken off the bondage of natural selection, and insists on saying and saying successfully, 'I will live,' when every natural chance is against him. . . ." What the children die of is, to a large extent, their parents, and the only thing a nation dies of is lack of men." He fully recognizes that the nation which first subjects itself to rational Eugenic discipline is bound to inherit the earth. We must rouse up the enlightened public opinion and educate the masses in hereditary laws, and then it is to be hoped that people with gross family blemishes on their escutcheon will abstain from parenthood, and that those who do become parents will fully recognize their responsibility and bring forth children under favorable auspices. Let them have children of whom they can justly feel proud, like the Roman matron who wished to be known in history as the mother of the Gracchi.

There can be no doubt that family limitation has had an important, perhaps the most important, bearing on the death rate, but our medical officers of health do not draw any attention to the obvious association, they are content to deplore the former and take all the credit for the latter to themselves. The improvements which they have effected in sanitation and in the segregation of disease have been of great advantage to individuals, but it is very doubtful whether their efforts have been equally beneficial to the race. Their work is purely environmental—I am one of those who fully recognizes the enormous advantages of a suitable environment—and consequently the only lives which they save are those of susceptible individuals whose resisting power is low and who have been preserved from infection. Once a person has been infected by any contagious disease his recovery depends on his own innate powers and on medical treatment. Herbert Spencer says:

"Perfect correspondence would be perfect life, were there no changes in the environment but such as the organism had adapted changes to meet, and were it never to fail in the efficiency with which it met them, there would be eternal existence and eternal knowledge." The definition of Christ is more suitable for this sphere. "This is life eternal—that they might know Thee, the true God, and Jesus Christ whom Thou hast sent." Eternal life is not suited for this world whatever continuity there may be in the next. The Eugenist is more concerned with the efficiency of life than with the undue prolongation. Paul Bert, speaking of the aged, said that "they deserve congratulations, care, and consideration, but the prolongation of their lives does not demand any special solicitude from society." Paul Bert died young; perhaps if he had lived longer he might have altered his opinion.

There has been lately an enormous amount of speculation, by men who dub themselves scientists, as to the origin of life, but they have not brought us a second nearer the solution of the problem. Such speculations are even less profitable than a flutter in wireless telegraphy; they are merely the useless products of the scientific imagination. Even supposing these gentlemen succeeded in animating a colloidal mass it would take them at least ten thousand million years before they could evolve a mouse, let alone a human being. What view you and I will then have of life I shall not venture to conjecture. It is much more simple and saves you a lot of trouble to believe in a Creative Intelligence. What Eugenists wish is to go forward and evolve a higher type of human being than that at present in existence.

I have frequently got myself into hot water with some of the educational authorities by inveighing against the primary education in this country. A system of very bad instruction is called education which is about the least practical and the most imperfect in Europe, and costs the country over thirty millions a year. I know many teachers who are well aware of the futility of the present system, but they are powerless to alter it. Primary education should be more technical and more varied, according to the capacity of the individual. Every intellect should have an opportunity for education according to his or her capacity, and we should get rid of that dead level of uniformity which does not exist in nature. Dr. Motts says: "No two brains are alike, any more than two faces, but there is a close family resemblance." The educational authorities seem to start with the fallacy that children are all equal at birth, and that equality of opportunity should be afforded to all. The Board of Education seems to be so foolish as to imagine that intellect is the product of education. Some extremely able men in the last generation could not even write their own names, and in the present day many beings have whatever natural intelligence they possess driven out of them before they leave school.

Pupils should not be under the necessity of forgetting nearly everything they learned at school. At present there is not a teacher in the world who can educe intelligence where there is none. The great secret of education is to teach people to think, and the pupil who is not taught to doubt every statement of his teacher until he has personally proved it or is convinced of its accuracy is not being properly taught. I have long held that the Boy Scouts, among those attending the primary schools, received the most useful and practical education and training. I am now very pleased to find Principal Griffiths in his very able address on education at the British Association following in the same lines. He says, *inter alia:* "A nation which expended but four millions for the encouragement of higher education and research and thirty millions on the rudiments could not be said to lend that recognition, assistance and encouragement to the best brains of the country which was the one form of educational outlay which was certain to bring, as Mr. Wells had truly indicated, not only the best return industrially, but also an immunity from invasion otherwise unobtainable." We are now threatened with another Education Act which will probably further dwarf the intellects of the majority of the nation. From the present and all other governments of a similar type good Lord deliver us.

THE CORRELATION, UNIFICATION, OR SYNTHESIS OF CHEMO- AND PSYCHOTHERAPY

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At the meeting of the Seventeenth International Medical Congress, Professor Paul Ehrlich took occasion to call upon the scientific men of the world to combine and work together for the advancement of Chemotherapeutic research. In his address upon that occasion he gave a beautiful portrayal of the problems and the triumphs of chemotherapy and profoundly enlightened the general session of this International Congress.

At the present time the application of chemotherapy is supposed to lie solely in the treatment of the different infectious disorders. Flexner assures us that immunology and experimental therapeutics have established the chief factors on which recovery from infection rests. All are in last analysis chemical reactions that are performed with varying reagents consisting of antibodies, phagocytes and specific drugs, acting separately or together. Probably the antibodies and phagocytes always cooperate and in many instances certainly, if not in all, the antibodies, phagocytes and drugs as well. Recovery from infection, therefore, is brought about, according to him, through suppression of the microbic causes either by biologic antibodies evoked within or by drugs introduced from without the body.

The mechanistic conception of life has exerted a marked influence upon the evolution of therapeutics during the past few years. We are no longer satisfied to treat merely symptoms, but seek to find the pathogenic cause, be it designated microbic, parasitic, chemical, physical, physiological or psychological, since there is no action without reaction, and all manifestations of living phenomena refer to one and the same reality, an organism in function.

In applying our therapeutics, we no longer make effort to attack symptoms, which, considered in themselves, have only a slight indicative value. We are concerned today only with the actual causes of the disturbances which we are called upon to treat. Specific treatment, like that for syphilis or malaria, by mercury and salvarsan or quinine; specific therapeutics such as serotherapy, and specific therapeutics such as psychotherapy, which, in the presence of affections originating in the affective states, the emotions, essays to cure them by finding the source from which the exciting pathogenic factor came, and to remove the cause by means adapted to the end desired, with as much scientific accuracy as by the employment of Flexner's serum for the treatment of cerebrospinal meningitis, salvarsan and mercury in syphilis, or quinine in malaria. Of our old therapeutic armimentarium, we are finding that very little of it remains, except those remedies which were justified in being classed as specific without the fact having been known, such as was the case of sulphur in scabes, quinine in malaria, and mercury in syphilis, in which we were doing better than we really knew.

Today the microbe has been isolated and we are adopting measures that will contribute to his undoing. Our therapeutics is practically narrowed down to two general measures, i.e., those inhibiting the life of the invading parasite and those of heightening the immunity of the host. The laboratory methods of examination of the morphological constituents of the blood and the chemical elements of all other bodily fluids has resulted in the rewriting of some of our physiology and improved the diagnosis and treatment of a number of diseases.

It is not my purpose to more than merely refer to the etiology and treatment of the intoxications or chemical changes associated with the diseases generally recognized as being caused by parasites, such as syphilis, gonorrhea, tuberculosis, meningitis, typhoid, and other conditions generally classed under the infectious diseases, save as they are influenced by the condition recognized as intestinal autotoxemia and the vicious cycle in gastrointestinal pathology and its associated toxic, neurasthenic and psychasthenic condition, and gross pathology as well, including visceroptosis and other consequences of functional disorders of the digestive tract.

My purpose is to show that in the employment of the measures herein indicated we are in perfect accord with the modern sero and chemotherapy now claiming the world wide attention of physicians; that the indications for the employment of the combination of measures herein outlined, is just as clear, its application just as scientific and the results just as certain.

In order to better understand the problem with which I am to deal, it seems necessary to state a few preliminary considerations.

As I have stated in a previous paper, viewing man from the standpoint of evolutionary monism, the treatment of mental and physical diseases cannot be separated. Mental affections, socalled, are frequently merely the expression of some general pathological condition, such as specific infections, autointoxication, abnormal internal secretions; cardiac, vascular, hepatic and renal insufficiency, and other conditions associated with disordered metabolism; and we are recognizing that it is not diseases that we are called upon to treat, but disease—a diseased patient. With modern methods of diagnostic precision, we seek the cause and remove it, be it endogenous or exogenous, bacteriological, dietetic, social, occupational or psychological,—whether found in the habits of the individual, or in the instincts and experiences dating back to childhood and infancy, such as may be acting as the cause of the functional disturbances leading up to the development of gross pathology. Only with this viewpoint held constantly before us, can the problem of cause, prevention and cure be made rational and effective.

The chemical properties of living things are not fixed, but are subject to certain constant changes and sometimes fundamental fluctuations. All living things, from protozoa to man, are made of the same chemical elements as minerals; a living being or thing is the arena of the same physical forces as those which govern the inorganic world.

Life is difficult to define because it differs from one living being to another, even of the same species; the life of a man is not that of a polyp or of a plant, and if we find it impossible to discover the lines of demarcation which separates life from other phenomena of Nature, it is because no such line of demarcation exists—the passage from animate to inanimate is gradual and insensible.

A living being is a transformer of matter and energy, only a current of matter and energy, both of which change from moment to moment while passing through the organism.

All methods that produce therapeutic results are biochemical, be they designated as psychic, baleologic, hemolytic, catalytic, chemic, physiologic or biologic. All therapeutic measures produce results in conformity to a common law, i.e. the action and reaction of physicochemical phenomena. They are physicochemical processes.

The elementary phenomena of life is the contact between an alimentary liquid and a cell. For the essential phenomena of life is nutrition, and in order to be assimilated all the elements of an organism must be brought into a state of solution. Hence the study of life may be best begun by the study of those physicochemic phenomena which result from the contact of two different liquids. Biology is thus but a branch of the physicochemistry of liquids; it includes the study of electrolytic and colloidal solutions, and of the molecular forces brought into play by solution, osmosis, diffusion, cohesion and crystallization.

Clows has found that the virulence of tumors and their rate of growth were directly proportionate to the potassium content and inversely proportionate to the calcium content. This, he considered, indicated a peculiarity in the equilibrium of electrolytes and in the absorption of electrolytes by the cell. Disturbances of the normal equilibrium would modify the permeability of the cell membrane, and would vary the passage of food stuffs through the membrane for the nutrition of the cell. The equilibrium of the cell was identical with the equilibrium of its membrane, which in turn meant the equilibrium of the contained lipoids, and this could be expressed as the equilibrium of the electroytes, showing that the changes constantly going on in pathological processes are being expressed in terms of electrokinetics.

The resistance of certain parasites which has to be taken into account in definite problems of immunology is purely a chemical question, which can only be solved by chemical means.

Ehrlich tells us that in the parasites there are present different specific chemoreceptors, for instance, the arsenoreceptor, which fixes the trivalent group of arsenic as such; and the acetoreceptor, which fastens to itself the acetic group, an iodinereceptor, an orthoamidophenol-receptor, which conditions the fixation of the salvarsan, and many others in addition. A complete exhaustive knowledge of all the different chemoreceptors of a certain definite parasite is what he would characterize as the therapeutic physiology of the parasite cell, and this is a *sine qua non* of any successful chemotherapeutic treatment. He emphasizes the fact that many observations indicate that certain chemoreceptors are due to several different kinds of parasites, not to a single one. The knowledge of these is of special practical importance, because remedies which are adjusted to these have a healing influence on a very large series of the most various pathogenic agents. The larger the number of different chemoreceptors, therefore, which can be demonstrated, the greater is the possibility of a successful chemotherapy.

He informs us that the first condition, in seeking for specific remedies is that they must possess a certain definite grouping, which is chemically allied to one of the chemoreceptors of the parasite. This representation exactly corresponds to his formerly maintained views with respect to toxins, in which he distinguished the presence of a haptophoric group, which conditions the cell fixation and also the formation of the antitoxines, and a toxiphoric group which brings about the injurious action on the cell. The assumption is made that the haptophoric and the toxiphoric groups are not directly connected with one another, but are linked with a chemical molecule in the character of side chains as separate groups.

He asserts that according to a fundamental biogenetic principle, it is quite a common thing for substances which act destructively in large quantities to bring about an increase in the vital functions when given in smaller doses. The only substances, therefore, that can be used as therapeutic agents are those in which the ratio between organotrophic effect and paracitotrophic effect is a favorable one, one that can be easily ascertained by experimental comparison of the *"dosis toxica"* with the *"dosis tolerata."* The only substances that can be considered therapeutic agents are those of which a fraction of the dosis tolerata is sufficient to bring about therapeutic effects.

The organotrophic effect of drugs is to be attributed, according to Langley and Ehrlich, to the fact that there are in the most various cells of the body and its organs quite different chemoreceptors, exactly in the same manner as have been postulated for the parasites. Apart from the pharmacological effect of the various remedies, this chemical difference of the organs appears clearly in the method of vital coloring.

Such are in part some of the theories of Ehrlich pertaining to the biochemical qualities of certain cells of the living body and its organs, but equally as interesting is the direct proof adduced by Crile* of the mechanistic action that the brain cells play in maintaining consciousness; of the fact that the degree of consciousness and mental efficiency depends upon the physical state of the brain cells; and finally that efficiency may be restored by sleep, provided that exhaustion of the cells has not progressed too far. In this greatest phenomena of life then, the mechanistic theory is in harmony with facts. Crile's postulates are partly in harmony with my own writings in that he maintains not that man is in large measure the product of his environment, but that environment has been the actual creator of man; that the old division between mind and body, soul and spirit is nonexistent; that man is a unified mechanism responding in every part to the adequate stimuli given it from without by the environment of the present and from within by the environment of the past, the record of which is stored in part in cells throughout the mechanism, but especially in its central battery—the brain. He further maintains that the human body mechanism is equipped for such conflict with environment as will tend first to the preservation of the individual and second for the propagation of the species, both of these functions when most efficiently carried out tending to the upholding and perfection of the race.

In one particular, alone, would I differ from this postulate so beautifully set forth by Crile. I maintain not only that environment is man's creator, but that man is the actual creator of the environment that creates him. The American government creates our American citizenship, but the people create the American government. Shelter and warmth, food and clothing, education and companionship, constitute the environment that creates man, but man selects or creates these factors that create him.

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*Science, August 29, 1913.

We have reached the time when the doctrine of evolution, consciously and intelligently applied, is exerting a marked influence upon all the factors contributing to the welfare of human life, the treatment of disease, and the promotion of happiness.

We have elected as our leader a man whose foundation stone is the doctrine of evolution, and we are busy in making application of this doctrine to the betterment of the environment which creates man, whether sick or well. The doctrine of evolution should reconstruct every link in the chain of beings from the simplest to the most complicated; it cannot afford to leave out the most important of all, i.e. the missing link between the inorganic and the organic kingdoms. If there is a chain, it must be continuous in all its parts; there can be no solution of continuity.

Long ago, the penetrating genius of Lamarck seized on the idea that a knowledge of life could only be obtained by the comparison of organic with inorganic phenomena. He writes: "If we would acquire a real knowledge of what constitutes life, of what it consists, what are the causes and the laws which give rise to this wonderful phenomena of nature, and how life can be the source of the multitude of forms presented to us by living organisms, we must before all consider with great attention the differences which exist between inorganic and living bodies; and for this purpose we must compare side by side the essential characters of these two classes of bodies."

Laduc* tells us: "Synthetic biology includes morphogeny, physiogeny, and synthetic organic chemistry, which is also a branch of synthetic biology, since it deals with the constituents of living organisms."

Synthetic organic chemistry is here already as a well organized science, important by reason of the triumphs it has achieved, as has been well demonstrated by the work of numerous men from Pasteur down to many workers of the present day, particularly Erhlich and Flexner. The other two branches of biological synthesis, morphogeny, the synthesis of living forms and structures, and physiogeny, the synthesis of living functions, can hardly be said to exist as exact sciences. They are, however, no less legitimate and no less important than the sister science of synthetic chemistry.

Already the light from these unexplored fields comes glimmering in upon our pathway, and there is spreading before us vistas of magnificent tablelands of therapeutic efficiency, full of promise for the amelioration of the diseases of man. Into this new field men of science are already penetrating and they are harking back to us messages full of promise. To some of us this is not alone a "promise." It is already a fulfilment, a realization, an actuality,—a practical, tangible, reliable therapeutic resource which is day by day proving its practical worth in our every day work.

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*The Mechanism of Life. Rebman & Co.

We are not waiting for details to be worked out, as is being done for us by such men as Beauchard, Combs, Minkowinski, Cohenheim, Pawlow, Starling, Vaughan and scores of others. Already we have made a dash into the field, relying upon *the test of clinical experience* as our guide, and every day these scientific workers are corroborating our clinical results and giving us added assurance that we are on solid ground. Every day we gain fresh help from the auxiliary sciences, and we realize more and more the unity and the universality of medicine.

Unity is the watchword of the present age, but if unity there is to be, it must be supported by a system of medicine that takes cognizance of the entire human being and of all of the factors contributing to his development. Even in making out our diagnoses, "localizations," as Minkowinski remarks, "does not mean that the whole process is limited to the bounds of a single organ." No organ exists for itself alone. There is such a thing as the correlation of organs and tissues, each and all acting together as an inhibitory or excitatory mechanism. The function of every organ depends on processes taking place in other organs and the products of its own activity influences the functions of other organs. These products may be ferments which promote decompositions in the blood or they may be hormones which regulate the activity of cells. Functional disturbances in any organ, as I have long maintained, may therefore affect other portions of the body.

In other words, it is not enough to make a localized anatomical diagnosis; we must make a clinical diagnosis as well.

A great deal is being said today about aminoacids, the end products of protein metabolism, but it is important to note that the tendency of modern research is to show that the simple aminoacid products of protein digestion in the alimentary canal are resynthesized after absorption by the body's own cells, and that almost all of the tissues possess intracellular enzymes which can convert its proteins and carbohydrates into the same simple products.

Furthermore, it has been shown that aminoacids could be divided into two great groups: those giving glucose under certain conditions and those giving acetone bodies. Glucose is, therefore, to be regarded as a very probable intermediate product of protein digestion.

Showing further evidence of carbohydrate influence on the protein metabolism, Cramer of Edinburgh brings forward the evidence that nitrogenous organic substances could be built up from ammonia and nonnitrogenous substances, but other able physiologists are emphasizing that too much importance might be attached to perfusion experiments of isolated organs, while still others are emphasizing the great difficulty of finding breakdown products in the blood.

May it not be that the central nervous system exercises a greater influence upon the metabolic processes than some of those who are studying isolated organs by laboratory methods can appreciate?

Crile tells us that the essential function of the nervous system was primarily to secure some form of motor activity, first as a means of securing food, and later as a means of escaping from enemies and to promote procreation. According to this author, activities for the preservation of the individual and of the species were and are the only purposes for which the body energy is expended. The central nervous system has accordingly been developed for the purpose of securing such motor activities as will best adapt the individuals of a species for their self preservative conflict with environment. He shows that socalled "psychic" states as well as the reflexes are products of adaptation; that they occur automatically in response to adequate stimuli in the environment; that like reflexes they are expressions of motor activity, which although intangible and unseen, in turn incites to activity the units of the motor mechanism of the body; finally, that any "psychic" condition results in a definite depletion of the potential energy in the brain cells which is proportionate to the muscular exertion of which it is the representative.

Further, that this nerve mechanism may effectively carry out its twofold function, first, of self adaptation to meet the increasingly complicated stimuli of environment; and second, of in turn adapting the motor mechanism to respond adequately to its demands, there have been implanted in the body numerous nerve ceptors—some for the transmission of stimuli harmful to the mechanism—nociceptors; some of a beneficial character—beneceptors; and still others more highly specialized, which partake of the nature of both bene- and nociceptors—the distance ceptors.

According to him the response to contact stimuli then depends always on the presence of nociceptors in the affected part of the body and to the type of the contact.

These adaptive responses to stimuli are the result of the action of the brain cells which are thus continually played upon by the stimuli of environment. The energy stored in the brain cells in turn activates the various organs and parts of the body. If the environmental empacts are repeated with such frequency that the brain cells have no time for restoration between them, the energy of the cells becomes exhausted and a condition of shock results. He further tells us that every action of the body may thus be analyzed into a stimulation of ceptors, a consequent discharge of brain cell energy, and a final adaptive activation of the appropriate part. Walking, running and their modifications constitute an adaptation of wonderful perfection, for, continues Crile, as Sherinton has shown, the adaptation of locomotion consists of reflexes—ceptors in the joints, in the limb and in the foot being stimulated by variations in pressure.

Why are we not equally justified to postulate ceptors in the cells of the various glands of the body, for the purpose of increasing the metabolic processes in response to the needs of the body as an adaptive mechanism? As a matter of fact, action of body and mind increases all physiological processes and heightens the psycho-physiological potential of every element in the human organization.

Crile shows that the bene- and nociceptors orientate man to all forms of physical contact—the former *guide him* to the acquisition of food and to sexual contact; the latter *direct him from* contacts of a harmful nature. The distance ceptors (particularly his eyes), on the other hand, adapt man to his distant environment by means of communication through unseen forces—ethereal vibrations produce light; air waves produce sound; microscopical particles of matter produce smell. The advantage of the distance ceptors is that they allow time for orientation, and because of this great advantage the majority of man's actions are responses to adequate stimuli. As Sherinton has stated, the greater part of the brain has been developed by means of stimuli received through the special senses, especially through the light ceptors, the optic nerves.

Further quoting Crile, the contact ceptors do not at all promote the expenditure of energy in the chase or in fight, in search for food or for mates. Since the distance ceptors control these activities, one would expect to find that they control also those organs whose function is the production of energising internal secretions. Over these organs—the thyroid, the adrenals, the hypophysis—the contact ceptors have no control. Prolonged laboratory experiments seem to prove this postulate. According to his observations, no amount of physical trauma inflicted upon animals will cause hyperthyroidism or increased epinephrin in the blood, while fear and rage do produce hyperthyroidism and increased epinephrin. This is a statement of far reaching importance and is the key to an explanation of many chronic diseases—diseases which are associated with the intense stimulation of the distance ceptors in human relations.

Crile tells us: "On this mechanistic basis the emotions may be explained as activations of the entire motor mechanism for fighting, for escaping, for copulating. The sight of an enemy stimulates in the brain those patterns formed by previous experiences of the individual with that enemy, and also the experiences of the race whenever an enemy had to be met and overcome. These many brain patterns in turn activate each that part of the body through which lies the path of its own adaptive response—those parts including the special energizing or activating organs. Laboratory experiments show that in an animal driven strongly by emotion the following changes may be seen: (1) a mobilization of the energy giving compound in the brain cells, evidenced by a primary increase of the Nissl substance and a later disappearance of this substance and the deterioration of the cells: (2) increased output of epinephrin, of thyroid secretion, of glycogen and an increased power of oxidation in the muscles; (3) accelerated circulation and respiration with increased body temperature; (4) altered metabolism. All of these are adaptations to increase the motor efficiency of the mechanism. In addition we find an inhibition of the functions of every organ and tissue that consumes energy, but does not contribute directly to motor efficiency. The mouth becomes dry; the gastric and pancreatic secretions are lessened or are completely inhibited; peristaltic action stops. The obvious purpose of all these activations and inhibitions is to mass every atom of energy upon the muscles that are conducting the defense or attack.

"So strong is the influence of phylogenetic experience that though an enemy today may not be met by actual physical attack, yet the decks are cleared for action, as it were, and the weapons made ready, the body as a result being shaken and exhausted. The type of emotion is plainly declared by the activation of the muscles which would be used if the appropriate physical action were consumed. In anger the teeth are set, the fists are clinched, the posture is rigid; in fear muscles collapse, the joints tremble and the running mechanism is activated for flight; in sexual excitement the mimicry is as obvious. The emotions, then, are the preparations for phylogenetic activities. If the activities are consummated, the fuel—glycogen—and the activating secretions from the thyroid, the adrenals, the hypophysis are consumed. In the activation without action, these products must be eliminated as waste products and so a heavy strain is put upon the organs of elimination. It is obvious that the body under emotion might be clarified by active muscular exercise, but the subject of the emotion is so strongly integrated thereby that it is difficult for him to engage in diverting, clarifying exertion. The person in anger does not want to be saved from the ill effects of his own emotion; he wants only to fight; the person in fear wants only to escape; the person under sexual excitement wants only possession."

"All the lesser emotions—worry, jealousy, envy, grief, disappointment, expectation—all these influence the body in this manner, the consequences depending upon the intensity of the emotion and its protraction. Chronic emotional stimulation, therefore, may fatigue or exhaust the brain and may cause cardiovascular disease, indigestion, Gráve's disease, diabetes, and even insanity."

"The effect of the emotions upon the body mechanism may be compared to that produced upon the mechanism of an automobile if its engines are kept running at full speed while the machine is stationary. The whole machine will be shaken and weakened, the batteries and weakest parts being the first to become impaired and destroyed, the length of usefulness of the automobile being correspondingly limited."

I have quoted freely from this able article of Crile's because it so completely substantiates premises from which I have worked for the past fourteen years.

The five special senses are nothing more or less than projections of the central nervous system spread out to reach the surface of the body to receive the impact of the outside world, and every impression made upon man's motor mechanism is such as to activate one or the other of the fundamental instincts.

If these instincts fail to overcome obstacles, by calling into play the entire intellectual and physical capacities of the organism, there is a disturbed equilibrium in all of the functions of the organism, a misadaptation to environment, hence a disease. Equilibrium is a conception of physical science, and as such susceptible of exact definition; to regard adaptation in this light implies that the problems which it presents are essentially physicochemical reactions.

A disturbed equilibrium, leading to exhaustion of brain cell power, results in functional disturbances such as indigestion, constipation, deficient nutrition, retarded combustion, intestinal stasis, and their consequent visceroptosis, cardiovascular, hepatic, nephritic and glandular degenerations. The disordered physical machinery, with the consequent disturbances in the biochemical and cellular changes, aggravate the nervous and mental symptoms and there is a lowered physical potential of every cell and every function of brain and body. The organism becomes, as a consequence of these metabolic disturbances, less immune to the various infectious diseases; all bodily defences are hindered, and we have invented a thousand or more names for these natural disintegrative processes, which are not diseases, but are the natural consequences of conflicts between the human mechanism and the destructive factors of his environment.

A. Chauffard, Professor of Clinical Medicine in the University of Paris, in his address before the recent International Congress, truly says: "Whether from a historical or a practical standpoint, we thus find that prognostic investigation has progressed by successive stages from anatomical lesions to functional disturbances and chemical changes, until it has reached the stage where judgment is based on criteria of a dynamic and vital order. If diagnosis consisted simply, as Pinel would have it, in 'assigning to a given disease its proper place in nosology' it would be a most fruitless and conventional effort. Our conception is a very different one; for us diagnosis signifies the recognition, as perfect and precise as our means of investigation will allow, of a morbid condition considered in regard to its origin, its present state, its future course."

"The pathological life of an individual appears no longer merely as an interrupted series of isolated episodes; but we try to discern its unity, to follow its continuous course, and take into account the sudden and sometimes final deviations and the new pathological directions that may be given to the organism by an intercurrent disease."

One must study the work of Combs, "Autointoxication," and the symposium upon "Alimentary Toxemia" presented before the Royal Society of Medicine to fully appreciate how completely intestinal toxemia is accepted as an established pathological condition, though it is somewhat significant that the information forthcoming from bacteriologists and biochemical investigators in regard to the nature of the poisons concerned was admittedly meager.

Evidence is accumulating to show that, among the many functions of the thyroid gland, one of the most important is a protective action against circulating toxins. Complete removal of the thyroid leads not only to myxedema—a condition which may be cured partly or completely by the administration of its internal secretion—but also, as is well known, brings with it a considerable risk from a rapidly fatal toxemia. My humble opinion, based upon the successful treatment of goitre by fasting as a means of sterilizing the alimentary tract, followed by reeducating the patients out of their abnormal emotions, is that the emotions cause the gastrointestinal disorders which are always associated with goitre, save where drinking water is responsible for the toxins producing the disease.

Rheumatoid arthritis is another condition frequently due to alimentary intoxication, and when thus caused is easily cured by disintoxication and reeducation.

As to the real nature of the toxemia of supposed alimentary origin, the primary cause of which I am convinced is frequently to be found in the emotions and consequent brain cell exhaustion which superinduces the functional disorders of the gastrointestinal tract, making it, at least in part, a secondary phenomena, little is known. While much is known of the bacteriology of the alimentary tract, little is known of the bacteriology of alimentary toxemia originating in the gastrointestinal tract.

I frankly agree with those who hold that tubercle, cancer, rheumatoid arthritis, arteriosclerosis, disease of the heart and kidneys, and all diseases, whether designated nervous, mental or physical, bacteriological or parasitic, are either directly or indirectly influenced in their course by putrefactive processes going on in the alimentary canal, and I do not believe that the "kink" theory has any considerable influence in the matter, if any at all.

I base my conclusions upon the successful treatment by disintoxication through fasting, together with reeducation, of 62 cases of various types of the socalled degenerative diseases, nervous, mental, cardiovascular, nephritic, glandular, and a successful result was obtained in each case, save two in which incorrigible misadaptation of a social nature presented itself as a part of the complication.

We are completely ignorant of the mode of transformation of chemical into kinetic energy in the living organism; we only know that muscular contraction is accompanied by a change of form; that at the moment of transformation the combustion of the muscle is increased, and during contraction the stretched muscular fiber tends to acquire a spherical shape. It is this shortening of the muscular fiber which produces the mechanical movement.

The step which we do not as yet fully understand is the physical phenomenon which intervenes between the disengagement of chemical energy and the occurrence of muscular contraction.

Is it not at this point where intellect, or consciousness, the psychic component, comes into play as the determinant in the exercise of its influence upon the material chemical elements of the organism and guides and directs its movements? Is not this intelligence, or consciousness, also, universal, and is it not the most needed factor by human beings, sick or well, that its exercise may liberate the potential energy inherent in the human organization and guide its movements in relation to his environment for the purpose of acquiring a higher degree of psychophysiological potential in order that he may withstand the draft made upon his powers in the struggle for existence?

Is it not a fact that the diseased human organism needs more than anything else the specific stimulus of spoken words, ideas, concepts, viewpoints—education in short—to be conserved by his neuron elements as a part of his personality to enable him to use his potentialities as an adaptive mechanism in relation to his environment?

By the results that actually accrue from the employment of these measures for the accomplishment of a definite end, in its application to the treatment of all disease and for the reestablishment of health, I do not hesitate to assert that herein lies the most efficacious therapeutic remedy at our command, and that its efficacy is precisely commensurate with the intelligence and the motive of the physician employing it.

The human being as an adaptive mechanism is constructed with potentialities striving for the accomplishment of a definite purpose, i.e. self preservation and species preservation; the instinct of nutrition and reproduction. Personality itself, either regarded from the psychic or physical component, is but the result of the strivings of these primitive instincts. In every case of illness, matters not what be the terminological diagnosis, we face a human being whose evolution has been retarded, or arrested, and the bacteriological findings as well as the gross pathology, to say nothing of the symptomatic manifestations of the psychoneuroses, such as neurasthenia, psychasthenia, dementia præcox and other grades of nervous and mental diseases, as well as of all disease processes, are but an expression of a retardation or inhibition of the motor mechanism, due either to inherited inferiority, a misadaptation to environment, or to a lack of psychophysical potential. Herein is the cause back of the bacteriological factors in disease and of gross pathology as well.

(*To be continued in December number*)

THE TREATMENT OF EPILEPSY

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Routine practice in the therapeutics of the present consists in giving the patients bromide in one of its various forms or prescribing one of the mixtures of which it is the chief ingredient. Digitalis, adrenalin, chloral hydrate, chloride of calcium, sumbul, solanum, belladonna, opium, adonis vernalis, borax, amyelene hydrate, paraldehyde, crotalin, preparations of the thyroid gland and various serums have all been used with varying success, but the treatment of the disease still remains one of the hardest neurological problems we have to deal with. Patent preparations are advertised a sure cure for epilepsy, but after a thorough trial have all been found wanting, and in many cases have only delayed the use of other adjuncts in the treatment of the disease, which have been found curative in some measure.

Diet has a marked influence in this condition, and the improvement we often see in our epileptic patients to a large extent can be attributed to careful supervision of the daily cuisine. Cutting out sugar, candy, pastry and a majority of the sweets, also those vegetables which cause gaseous distention and internal fermentation materially influence the number and severity of the attacks. A light, easily digestible diet, free from meat, has proved to be the best method of procedure we have at hand. Patients of this type are inclined to eat large quantities of food, and if left to their own devices will eat inordinate amounts of indigestible matter. They are not satisfied unless they have "something to eat" always before them. This, of course, is not true of every case. As a class they are continually trying to do just the thing which is worst for them. It requires patience, tact and sometimes strong discipline to keep them from indulging in all sorts of foods not necessary for their own health. Many epileptics are confirmed coffee and tea drinkers, and will drink large quantities of each at every meal if allowed to do so. Others are addicted to alcohol, believing, in some instances, that it will keep off the attacks or brighten them up after seizures. Still others use large quantities of tobacco, cigarettes being the favorite medium. All these have proved harmful, and serve in some cases to increase the severity and number of the convulsions.

Surgical operations seldom are curative unless there is a history of recent injury or a well defined lesion. The necessity of such procedure depends entirely upon the existence of pathological conditions, irritating in character, which make it obvious to the attending physician that an operation is imperative.

Careful examination should be made of the eyes as well as of the ears and nose. The teeth must be kept in good condition, as they deteriorate very rapidly during the progress of the disease. Constipation is often present and should be given careful treatment. The most favorable cases for treatment are those who have had but few seizures and can be intrusted to carry out a careful daily regime. Some writers suggest that such patients be sent to an institution for the treatment of epileptics alone. My own opinion is contrary to such procedure. The very fact that they are surrounded by patients of their own type and no other is depressing in the extreme to acute cases who have shown no brain change and are apparently lucid. Having to watch the chronic patient develop attack after attack helps materially in destroying resistance to the disease and patients often give up entire hope of being cured, becoming morose and ofttimes resistive and quarrelsome after days spent in company of those designated as incurable. Many of these older types develop secret habits or perversions. Some delight in obscene talk and repetition of foul stories; others recite tales of blood and enjoy repeating them from day to day. An environment of this kind is very bad for those in the acute stage of the disease, and has a tendency to make them morbid. Many of the sanitaria for nervous diseases have a separate cottage or department for epileptics and classify their cases so as to get best results. A regulated life under medical supervision is very helpful, and many cures result. The sooner patients are placed on strict diet and careful treatment the better, as the ravages of the disease soon destroy both body and mind. Placing these patients with nurses in small boarding houses or in the country, as a rule, does not produce cures. Without the constant supervision of a trained medical attendant, the nurse gets careless and soon forgets about necessary diet, restrictions, etc. An institution treating such cases of the acute type is of value only as it continues without let up, constant individual care, the proper diet and hygiene, also proper physical exercise.

The education of the child under treatment is a secondary consideration unless there are signs of improvement and permanent recovery. Most epileptics show a neurotic history and are of a nervous temperament. They are easily irritated and develop ugly tendencies. This is not true in all cases, some are very mild and easily handled. Most epileptics are susceptible to kind treatment and can be taught to govern their temper to a great degree. In fact, when they understand outbreaks of temper ofttimes are the cause of severe convulsions, they are very careful and willing to use every effort to avoid provoking attacks by outbursts of anger. Out of door work and exercise in the country are very helpful, long daily walks with some object in view, the exploring of a new road or gathering of apples, nuts, etc., brightens them up and gives them something to talk about outside of their disease. As a class they are easily pleased and delight in all sorts of games and diversions of the helpful type. Some are very expert in work along the line of arts and crafts. This gives useful employment and at the same time keeps the patient's mind away from his disease. Others like out of door employment on the farm or in the garden, and show much adaptation to work of this sort. I have known patients suffering from Grand Mal, even after brain changes had occurred and they showed a mild psychosis, to gradually change their temperament in the course of a few months under instruction of some one who took the time and trouble to get them interested. Those previously sordid and ugly, as well as difficult to control, became more amenable to discipline, more willing to do as they were asked and finally to brighten up materially under the new environment. Physicians, as a rule, regard the disease as incurable, and with cause, as it is very difficult to properly control this type of patient without the co-operation of others, and unless the family follow out the exact directions of the medical attendant no good results. For this reason a proper institution where a regulated life can be established and where the proper diet and medication can be carefully administered has proved to be the best method for combating the disease. It is highly essential that they should be put under such supervision at the earliest moment, as it increases their chance for full recovery.

Many epileptics have an aura previous to the attack which manifests itself in various ways. Sometimes a low cry which is readily understood by those who have long known the disease. A sharp pain in the head or a feeling of dizziness often comes before the seizure, others run a few steps or see various colors before their eyes. Patients soon learn these manifestations of oncoming seizures and prepare for the convulsion, which they know always follows, by finding a couch or chair or some place of safety. At such times attendants or relatives who have the case in charge should be very careful to see that the patient does not get a severe fall or injury. Loosing the clothes at the neck after removing the collar and tie or anything which constricts the throat. Placing a piece of wood between the teeth so that the patient cannot bite the tongue or lips. Raising the head and turning the face to one side will clear the mucus from the throat and make it easier for the patient to breathe. During the convulsion the arms and limbs are thrown about and the patient often bites and strikes. These movements should not be restricted except as they may do injury to self or others.

After the convulsion the epileptic is usually very sleepy and exhausted and will sleep for two or three hours when not disturbed. This period of sleep is very refreshing to patients, and they should be allowed to rest quietly for a time after the attacks. Others have a short period of maniacal excitement either before or after the seizure and have to be restrained. (This is true in cases of chronic type.)

After a few months, sometimes years, epileptics have a status, a large number of seizures in rapid succession, sometimes forty or fifty and even one hundred have been noted. Patients often die of exhaustion during the status. There is no apparent reason why this should be so, but a patient rarely has the disease for more than two or three years before a status occurs. During this period of attack following attack in rapid succession great care must be exercised and a nurse should be with the patient constantly. Various methods of treatment have been suggested to control this condition. Inhalation of chloroform or ether, also amyl nitrite and injections of morphia have been used with little success. Rectal enemata of chloral and bromide equal parts to ten parts of water have been used successfully. An enema of warm water should be first given to clear away any fecal matter, then the mixture can be injected and repeated if necessary. I have found a large dose of sodium bromide given with a coffee enema to be most efficacious. From forty to fifty grains of the bromide to one pint of coffee. This can be repeated in thirty minutes and generally controls the status. If the patient shows signs of collapse necessary stimulants should be given hypodermically. Bromide is the drug which controls the disease better than any other thus far. It is given in many of its various forms. Although it has never proved curative to any extent, it certainly controls the number and frequency of the attacks. For this reason alone its use has been most beneficial.

The increasing number and severity of the seizures begins at an early date to undermine the physical strength and mentality of the epileptic. By limiting the number of convulsions through the proper administration of this drug, much has been done to stem the degenerative tendency so noticeable in the disease. I think I can safely say that many cases of Petit Mal have been cured, and for years no recurrence of convulsions noted through the use of bromide. The drug has a marked accumulative action and this must be remembered in its use. Large doses are not necessary in the milder types of the disease, and if proper caution is used there is no need of having the bromide rash or the mental stupor caused by its use. No two patients take the drug alike, and a careful study of each case must be made to note the smallest dose necessary to control the convulsions. It is often a good method of procedure to force the amount given for a week, then stop all medication for the next week, keeping the bowels moving freely. I have always used bromide of sodium with best results. Others use bromide of potassium, strontium or ammonium; a mixture of three of those mentioned is sometimes used. In children five to ten grains are sufficient in most cases and will control attacks, providing the diet is carefully followed and the proper exercise is taken. In an adult ten to fifteen grain doses are usually sufficient to control seizures. Bromide should always be given after meals. If taken before it is apt to destroy the appetite and irritate the stomach. In cases showing specific history iodide of potassium can be administered; it should be combined with mercury. In these cases bromide should not be given at the same time, but may be used later if there is no relief from specific treatment. In all suspected cases a Wassermann blood test should be made.

One of the best methods of giving the drug is as follows:

Sodium bromide	15 grains
Pepsin	1 grain
Charcoal	5 grains
Glycerine	12 min's.
Ad Aqua q. s.	1 ounce

Tincture Gentian can be used rather than aqua. If the patient is constipated fluid extract cascara can be added.

Another good mixture is:

Sodium bromide	1 ounce
Hydrochloric Acid dil.	5 drams
Fluid Ext. Cascara	1½ to 2 drams
Lactopeptin q. s.	4 ounces

Sig. one teaspoonful in water t. i. d.

The cascara can be omitted if it gives too profuse catharsis. There are many other ways of administering bromide, in fact, most physicians have their own idea of the best vehicle.

We are getting results in the treatment of epilepsy by careful treatment and observation. The results obtained thus far should stimulate us to stronger effort to find the drug which will be most efficacious in the cure of each case presented to us.

To summarize, the following seems our best method of procedure. Regular diet, omitting meats and sugar; frequent baths and proper hygienic measures, well regulated exercise and mental diversion; administration of the drug which best controls the number and severity of the convulsions.

A MENTAL HYGIENE CONFERENCE

A mental hygiene conference, the first of its kind ever held, has been held at the College of the City of New York. There has been a public exhibit showing the purpose, methods and results of the new movement in striking form, and leading American psychologists, physicians and educators have attended.

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EDITORIALS

A CLEARING HOUSE FOR MENTALLY DEFECTIVE CHILDREN

Thanks to the wisdom and foresight of the Commissioner of Charities of New York City, a bureau for deficient children has been established at the Post Graduate Hospital of this city. It is generally known as the Clearing House for Mental Defectiveness, and is open each morning, except Sundays. A well known neurologist and psychiatrist is the director of the clinic. We are informed that each patient is first given a psychological test according to the Binet standard, and this work is carried on by members of the staff. After the psychological test a complete history of the case is taken from the mother or nearest relative by one of the physicians, special attention being given to the family history; signs of insanity, feedle mindedness, neuropathic taint, epilepsy, alcoholism, criminality, and then the personal history, beginning with prenatal influences, defect symptoms of infancy, illnesses, schooling, individual peculiarities, up to the present time. A complete physical and neurological examination follows and all the data found typewritten and kept on record.

When surgical interference or treatment is necessary, this is attended to, and the patients later brought to the clinic at regular intervals for observation. Again in every instance, the patient is interviewed at the home by one of the visiting nurses, who report conditions and sees to it that the doctor's advices are carried out. At the present time there are 147 charitable institutions sending patients to the Clearing House for examination and report, not to mention the Children's Court, hospitals and public schools. Many of the defectives are, of course, hopeless, so far as the present state of our knowledge is concerned, but something must be done if we are to safeguard them, and prevent the procreation of their kind. As a rule they cannot be properly cared for at their homes, and therefore many are sent to Randall's Island and up State institutions. At present there are about 1800 defectives in the former institution ranging from the very lowest grade of idiocy up. A large school building is devoted to teaching including in a special building that of Arts and Crafts, where all sorts of things are made. The hospital is well equipped, with three physicians in constant attendance, where investigations of various kinds are being made, and scientific apparatus and material as well as treatment instituted and carried on.

It is indeed hoped that this work will at least help to solve the all absorbing question of what to do for and how to care for these children, for without this attention and treatment the defectives must increase; as is the child so will be the adult, if left to himself. Is it not infinitely wiser to correct the child when possible than to enact laws governing marriages of the unfit; to begin at the root of the evil and endeavor to eradicate it rather than to arbitrarily unsex, or otherwise, wantonly violate the individual, perhaps after he has already been the means of bringing into the world others of his kind.

NEW THEORIES CONCERNING VENTILATION

We are informed that fresh air is of no consequence whatever, but that it is cold, dry and moving air no matter how stale: that cold dry air is the essential for emphasis in our systems of ventilation. For years it has been held that carbonic acid gas is a poisonous and dangerous substance when given off by the lungs. It followed, of course, that expired air of closed rooms was all but deadly. We are now informed that carbon dioxide is not the source of trouble in any concentrated degree in which the gas can occur under the most extreme conditions of "normal occupancy." When men are confined in calorimeters all the effects of vitiated air can be duplicated by the combined effects of two simple factors: heat and moisture. Take away the heat and moisture arising from the bodies of people confined in a small space, and the effects of crowd poison are at once removed, and this is true, it is held even when the air has been breathed over and over again by great numbers of people, when there is over one per cent. of carbon dioxide present in the air, together with other like contaminations. Lassitude, depression, dizziness, a tendency to nausea are all produced, we are told, by heat and moisture alone. Persons kept in uncooled rooms where the air was breathed and rebreathed are not relieved by breathing pure air through a tube, but are relieved by cooling or drying or agitating the air without changing its chemical composition in the least, without letting in any fresh air. What makes air in confined spaces uncomfortable and injurious is excessive heat and humidity.

It must not, however, in view of all this be thought that ventilation is of no importance, but it is not how much or how little air we get, it is what kind, how cold, how dry.

A New York State Commission will investigate the question of ventilation in schools, public buildings, theaters, churches, etc., and it is expected that the question of ventilation will be scientifically determined. In the meantime, however, it will be wise to ventilate our homes by opening and keeping open our windows and doors. Plenty of circulation of air throughout and sunshine into our homes will foster health. "Normal occupancy" will not consist of closed windows and doors.

CURE THE CHILDREN'S ILLS

It is to be hoped the New York City Department of Health will obtain the increase in its budget for the Division of Child Hygiene which it is seeking. The total amount of the increase is $29,100. For this the bureau expects to hire nine additional nurses, five additional medical inspectors, and eleven additional dentists, to supplement a staff which experience has demonstrated to be entirely too small to do the work allotted to it.

There are more than 800,000 school children in this city, and the number now is about 40,000 greater than it was last year. In 1912 the doctors and nurses of the Division of Child Hygiene examined more than 200,000 children for disease and found that 72 per cent. needed medical attention. But the rest had to go uncared for, whatever their ailments. It is believed that the increased staff sought will be able to care for the increased school enrolment this year, and perhaps do something toward caring for the proportion of the enrolment unvisited last year. It is poor economy to let minor ills in children develop into serious ones for lack of attention, and eventually compel attention in the city's clinics and hospitals. This increased appropriation is for a worthy purpose.

MAN DESCENDED FROM THE APE

The authorities on the apelike ancestors of man are fighting among themselves. One faction, represented by Dr. Arthur Keith, Conservator of the Museum in the Royal College of Surgeons of England, says that modern man, who is also apelike, has preserved his type for geologic ages, and that fossil remains identical in shape with modern skeletons may be found in the old clays and gravels. Such a skeleton, Dr. Keith says, was found at Lansing, in the State of Kansas, eleven years ago, in a glacial deposit that proves it at least 12,000 years old. Yet Dr. Ales Hrdlicka of the Smithsonian Institute rejects the bones because they resemble those of the modern Indian. Dr. Keith cites another case of the palaeolithic man of Halling, England, closely resembling the modern man, probably 30,000 years old, which is like the Halling skeleton. Dr. Keith's theory is that the ancestor of modern man exterminated the other types, just as his descendants exterminated the Australian black fellow, and that their bones should be looked for in the same geological deposits.

A PROPHECY OF THE FUTURE

"It is possible to believe that all the past is but the beginning of a beginning, and that all that is and has been is but the twilight of the dawn. It is possible to believe that all that the human mind has even accomplished is but the dream before the awakening. We cannot see, there is no need for us to see what this world will be like when the day has fully come. We are but creatures of the twilight. But it is out of our race and lineage that minds will spring that will reach back to us in our littleness to know us better than we know ourselves, and that will reach forward fearlessly to comprehend this future that now defeats our senses.

"All the world is heavy with the promise of greater things, and the day will come, one day in the unending succession of days, when beings who are now latent in our thoughts and hidden in our loins, shall stand upon this earth as one stands upon a footstool, and laugh, and reach out their hands amid the stars."

THE GLYCOSURIA OF DIABETES MELLITUS

Diabetes has been studied with special reference to internal secretions upon sugar metabolism, not only the secretion from the pancreas, but of the thyroid, parathyroids, chromaffin and the hypophysis. Von Noorden believes that the immediate cause of glycosuria in diabetes is due to an abnormal discharge of sugar into the circulation from the liver. This may be stimulated by overaction of the chromaffins, which may in turn be due to a stimulation by the central nervous system. Excessive discharge of sugar from the liver is normally inhibited by the secretion of the pancreas; this by the influence of the parathyroids or diminished by that of the thyroid or of the hypophysis. Diabetes may be produced by any of these influences which lead to an excess of sugar in the blood, but the fault lies principally in the pancreas or in the influences which bear upon its action in controlling sugar mobilization.

KILLED IN NEW YORK BY AUTOS

Sixty persons were killed in the street traffic of New York last month, thirty six of them children. Of this total, automobiles were responsible for thirty three, or nine more than in October, 1912, and, with the exception of September of this year, the largest death list from automobiles in the history of the city.

Automobiles have already killed 239 persons on the streets of New York this year, or eighteen more than they killed in the entire year of 1912.

DIGEST OF CURRENT MEDICAL LITERATURE

Acidosis in Surgery.—The following is the author's own summary of an article on acidosis as a complication after surgical operations by W. B. Russ, San Antonio, Texas (*Journal A. M. A.,* November 1): "Because of a marked reduction in the normal alkalinity of the blood, the result of some perversion of metabolism, many of the patients requiring surgical operations are unfit subjects for general anesthesia and the ordeal of an operation. The warning signs in such cases are: 1. A history of unaccountable headaches, vertigo, attacks of dyspnea, occasional nausea or vomiting, an unreasonable dread of the operation, tachycardia and other nervous symptoms. 2. A peculiar sweetish odor to the breath, suggesting the odor of rotten apples. In some cases this is marked and unmistakable. 3. The presence in the urine of the acetone bodies. To disregard these warning signs is to subject the patient at best to one or two undesirable conditions: first, an anesthesia requiring large amounts of ether or chloroform, and attended with struggling and great rigidity of the muscles, difficult breathing, a rapid pulse and nausea, followed by a prolonged and nerve racking convalescence with persistent vomiting, restlessness, dyspnea, a rise in temperature and much suffering; second, if less fortunate, to the certainty of a fatal termination, preceded by nausea, air hunger, persistent vomiting, a rise in temperature, great nervousness, followed by coma and death in from ten hours to two or three days. A recognition of the acidosis in time followed by the institution of such measures as a carbohydrate diet of, say, from 6 to 8 ounces of oatmeal and cream with lactose, large quantities of carbonated alkaline water, colon flushings with an alkaline solution and the internal administration daily of 3 or 4 drams of sodium bicarbonate or sodium citrate by mouth, will be followed by a rapid disappearance of all or most of the unfavorable symptoms, and the patient will be rendered for the time being at least a safe subject for the anesthesia and the operation."

Phenol-Camphor in Joint Disease and Cold Abscesses.—Pohl, Zentralblatt für Chirurgie, May 24, 1913 (*Journal A. M. A.,* July 5, 1913) reports that his experience has amply confirmed the statements of those who called attention to the way in which camphor seems to annul the corroding action of phenol. He used it in the formula 30 parts phenol, 60 parts triturated camphor and 10 parts alcohol, injecting this mixture directly into the lesion in cases of old rebellious effusions and destructive inflammatory processes in joints, and recurring rheumatic joint affections displaying a tendency to develop into arthritis deformans. In the course of the three years since he has been doing this he has even come to use this treatment for acute suppurative processes in joints and for articular rheumatism. The results were always strikingly good except that general sepsis did not seem to be influenced by the injections. He has had only two cases of this latter type; one patient died. In both cases the temperature dropped decidedly after the phenol-camphor injections. He has given the injections at intervals of two, four or eight days to a number of patients, never going above the dose of 2 up to 5 c.c., and except for slight carboluria has never witnessed any byeffects. There does not seem to be any reaction in a sound joint, but an inflamed joint swells and may become very painful, requiring application of ice or aluminum acetate; sometimes it may be necessary to draw off some of the effusion. The second injection induces merely a slight reaction, and the third scarcely any at all. The reaction is the more pronounced in the chronic cases. He calls attention in particular to a case of tuberculous caries of the ribs in which, after nearly a month's treatment with iodoform-glycerin, the process seemed on the point of breaking through. After three injections of the phenol-camphor and aspiration of the exudate, the process retrogressed and there was no visible evidence of its presence two weeks later.

Lung Infection from the Umbilicus.—Bonnaire and Durante (*Presse Médicale*, July 5, 1913) assert that infection of the lung originating at the umbilicus in newborn infants is a far more frequently occurring condition than has been generally realized. Latent infections of the umbilicus are often overlooked as a cause of acute and even chronic disease of the viscera. After the liver, the lung is the organ most frequently involved from this source. Three forms of lung disorder are recognized by the authors, the first including primary toxic lesions, manifested as violet colored patches of the lung tissue, variable in size, and due merely to the action of toxines on the vessels, attempts at bacterial culture regularly failing. Septicemic lesions may occur as miliary infarcts, with or without a surrounding zone of congestion, as foci of hepatization, or even as lung abscess or pleurisy; the bronchial tubes are characteristically intact, and there are bacterial emboli in small vessels, though, different from bronchopneumonia of respiratory origin, no bacteria can be found in the air cells. Occasionally, a third form of lung affection is seen, consisting in infants that have recovered from the umbilical infection, but succumbed to other accidental causes of pleural thickenings or areas of sclerosis in the lung, representing old healed infarcts. Regarding the diagnosis of these lung conditions, in general, the authors assert that careful auscultation and percussion are usually sufficient. Absence of pulmonary symptoms, however, does not signify definitely that the lungs are normal. In early septicemias no sign of umbilical infection may be apparent, or even may become manifest only after the visceral symptoms. Jaundice in the newborn preceded by an obscure rise in temperature and followed by the lung symptoms, is characteristic of umbilical infection.

Quinine Treatment of Hydrophobia.—D. L. Harris (*Journal A. M. A.*, October 25) discusses eight cases of hydrophobia treated by him in St. Louis. Due to opposition of several lay publications and certain members of the medical profession, there has arisen a belief that no such disease exists. It is hoped that the brief clinical review of seven deaths may, in a measure, add strength to the evidence of the existence of hydrophobia. Seven cases are reported completely as to onset, development, pathological examinations and results. Post mortem examinations were made in six of the seven cases. In five of them no Negri bodies were found; in one the Negri bodies were large and abundant. Brain substance from each case was injected into two or more rabbits and all of these, without exception, developed a paralysis typical of the disease and died. Negri bodies were abundant in the brain of every animal. The period of incubation averaged from twelve to thirty five days. Only one case, giving typical symptoms, is described in which injections of quinine and chloral hydrate were given as suggested by Moon. This patient recovered. The spinal fluid of the patient was injected into animals, none of which showed any symptoms of rabies. This does not, however, in the light of previous literature, preclude the possibility that this case was really hydrophobia. The cell free spinal fluid is rarely infectious in rabies. Although only further use can determine the value of quinine in hydrophobia, the experiments of Moon, together with this report, seem to support this conclusion.

The Value of Emetine in Liver Abscess.—Mallannah (*British Medical Journal*) mentions a severe case of amebic dysentery occurring in a woman of 40, an alcoholic. The trouble began about a year ago, and since that time the patient had suffered from diarrhea. About four months ago she began having chills and fever and soon after, on three different occasions, a hepatic abscess was emptied by aspiration. However, the pus continued to collect, and opening of the abscess was suggested; but on account of her weakness the patient declined to submit to the operation.

On March 13 he found the patient extremely debilitated, emaciated, and with marked enlargement of the liver. She complained of severe throbbing in the liver and was unable to lie on the right side. She was having about five liquid stools daily, was unable to sit up or move in bed, suffered from nausea, and was unable to take food.

Emetine in ¼ grain doses was now prescribed, to be given, in solution, thrice daily. Within one week the patient's temperature came down to normal, and remained thus: the diarrhea stopped and the pain in the hepatic region diminished. The swelling gradually began to grow less, and in a month the liver had returned to its normal size, appetite returned, the anemia disappeared, the patient began to gain weight, and soon was able to be about. Altogether, the patient received 21 grains of emetine.

He publishes this case, he affirms, to emphasize two facts: first, that emetine is effective in amebic infection even when suppuration has already taken place, and, second, that it acts efficiently when given by the mouth.

Anoci-Association.—G. W. Crile, Cleveland (*Journal A. M. A.*, October 25), describes his technic of anesthesia for handicapped patients by the method of anoci-associations. When hypertension exists, the risks of operation are increased and emotional stimulation, such as fear of the operation, also add to the risks. From an operation conducted after his technic the patient with hypertension will be no worse for the experience, but may be in actually better condition on account of the complete rest of body and brain. The same technic avails also in hypertension in which the margin of safety is reduced by exhaustion. He prefers nitrous oxid as a general anesthetic because of its lack of harmful after results and because as a hindrance or oxidation it diminishes brain cell changes, a fact which he has experimentally demonstrated. His method of nerve blocking has been previously described in other articles abstracted or published in the *Journal*, and for the fuller details the reader is referred to the paper itself. Crile points out how the postoperative morbidity and mortality is reduced, as shown by hospital statistics, and although the purpose of the present paper is to deal only with pelvic operations he refers to the statistics of the Lakeside Hospital, to show how advantageous its application in general surgery has been. The paper is illustrated by charts.

Picric Acid and Camphor Cure Ringworm.—Agnes Savill (*London Practitioner*) praises strongly Williams' formula for the treatment of ringworm, this consisting of picric acid 7 grains, camphor ½ ounce, and rectified spirit ½ ounce. Dr. Savill used this mixture with gratifying success in fifty cases, of which full records were kept. She secured cures in cases which had been treated for months with other remedies without success. She says that among the nurses and mothers of the neighborhood of the Children's Hospital, where the treatment was given, it acquired the reputation of being able to cure ringworm within three weeks. Dr. Savill makes a number of suggestions regarding technic. First, no other applications should be made; second, all the camphor in the lotion must be dissolved; third, the hair must be cut around the diseased patch in the usual way and the lotion painted on night and morning; fourth, the yellowish powder forming on the skin must be lightly washed away twice a week, in order to insure fresh applications reaching the scalp; fifth, the hair should be clipped or shaved off two or three times a week, otherwise the lotion will not penetrate to the scalp; sixth, loose hairs must be removed with the epilation forceps, being careful not to break them off. Chloroform rubbed over the patch gives the diseased hairs a frosted look which makes them easy to locate.

Hydrotherapy.—H. M. Hallock, Hot Springs, Ark. (*Journal A. M. A.*, July 26), gives the history of the Government Reservation at Hot Springs and the later government control, which has abolished certain customs and unsatisfactory conditions, and improved sanitary conditions and facilities for treatment. Slightly differing views are held as to the physiologic effects of the Hot Springs waters, but its benefits are manifested in rheumatism, autointoxication, in chronic alcoholism and especially in syphilis. The therapeutic effect are usually attributed to the increased metabolism, and this in turn to the radioactivity of the waters, which have been shown to be very marked. The high temperature and ordinary chemical analyses do not account for them. The baths are positively contraindicated in tuberculosis and in cancer. He reproduces the bill that was introduced in Congress at the instance of prominent members of the medical profession, to favor thorough investigation of the therapeutic action of the waters, but which did not pass. The plea is made that the American Medical Association give its aid to the proposed research.

Absorbable Bone Plates.—P. B. Magnuson, Chicago (*Journal A. M. A.*, October 25), advocates the use of ivory plates and screws in the open treatment of fractures. He has found by experiments that ivory is gradually absorbed, does not cause softening of surrounding bone, or become loose as may metal plates, since the bone grows in as the ivory is absorbed. It has also the property of being strong enough to stand any muscular strain affecting the fragments. He also uses ivory screws and mortices the ivory plates into the surface of the bones in applying them. His conclusions are that ivory has the advantages of being absorbable, does not loosen by necrosis of the bone, that it requires little manipulation in treating oblique fractures by ivory screws, and in transverse fractures with the plates; besides the above advantages, it can be closely fitted, is strong enough to stand any muscular pull, and unlike the metal plates does not act as a foreign body.

Skin Complications of Diabetes.—*Burnside Foster*, St. Paul, Minn. (*Journal A. M. A.*, July 12), thinks that many general practitioners fail to appreciate the close relationship of the skin complications to diabetes of which they may often be the first symptoms. Among these he enumerates dryness of the skin and pruritus, boils and carbuncles and malperforans which last occurs in about 3 per cent. These are the commonest disorders. Psoriasis has been reported and he has seen it once, but considers it only a coincidence. Other skin affections are rare and he has had little experience with them. The early recognition is important since, while the ultimate prognosis is probably bad, there are few other such serous diseases which are more amenable to intelligent treatment, as regards duration of life and the comfort of the patient.

Intestinal Stasis.—In an article on intestinal stasis, by Schlesinger (*Boston Medical and Surgical Journal*, July 3, 1913), we find the following conclusions: Early recognition and proper treatment by an intestinal lubricant, such as liquid paraffin, together with an abdominal support, will do much to render operative interference unnecessary. In the presence of a marked Lanes kink and any of the end results of stasis, operative interference is called for and may take the form either of division of the obstructing bands or, in the majority of cases, this will give more satisfactory results: the divided end of the ileum may be implanted into the colon below the last kink.

Prostatectomy.—J. B. Deaver, in *Surgery, Gynecology and Obstetrics,* August, 1913, emphatically declares that perineal prostatectomy has no foundation as a routine procedure for relief of benign prostatic hypertrophy. He describes in detail the technic and also means of stopping hemorrhage in the suprapubic operation.

H. Cabot states that prostatic hypertrophy is not hypertrophy in the common sense of the term, but rather the formation of new adenomatous tissue. He also shows that the perineal operation as described by Young is neither a safe nor a satisfactory procedure, but has every chance to fail of accomplishing its object, i.e. the complete and permanent relief of the obstruction.

Strophylococcus in Gonorrhea.—Warden (*Journal of Infectious Diseases,* July, 1913) submits evidence suggesting the following tentative conclusions: Many, if not all, of the Gram-negative, intracellular biscuit or coffee bean shaped cocci observed in the purulent discharge in acute gonorrhea, which are regarded as gonococci and which serve as criteria of diagnosis, are not gonococci but belong to the staphylococcus group. The provisional designation straphylococcus urethral is suggested for this coccus. True gonococci are demonstrable with difficulty or not at all in smears of gonorrheal exudates or in preparations of tissues. Gonorrhea may be due to double infection and dependent on a microsymbiocis. Diagnosis of gonorrhea rests on cultural methods only. The old criterion, the microscopic appearance of smears, is unreliable.

Treatment of Erysipelas by Means of Phenol (Carbolic acid) and Alcohol.—Dr. Aspinwall Judd, of New York, *Medical Record,* recommends the use of strong phenol (carbolic acid) painted on the surface in cases of erysipelas until the surface is whitened, and then followed by swabbing with alcohol. The treatment must go a half inch beyond the border of the eruption to destroy all the germs. The unbearable itching, burning, and throbbing are relieved at once, fever soon falls, and general symptoms are relieved. The author has treated successfully sixty seven cases, and five cases in which it failed. No scarring results. The superficial layers of the skin come off as in mild sunburn, and the complexion is improved.

Duodenal Alimentation in Cirrhosis of the Liver.—Einhorn (*Medical Record,* July 26, 1913) reports the use of duodenal feeding in six cases of beginning hepatic cirrhosis. In all six the liver became markedly smaller and in four the result was lasting. The writer feels that duodenal alimentation contributes greatly toward diminution of the functional work of the liver. This rest treatment is of benefit whenever hepatic function is considerably impaired. The cirrhosis and other conditions accompanied by swelling of the liver form an excellent field for this procedure.

The Action of Emmenagogue Oils.—Macht, in the *Journal American Medical Association,* July 12, 1913, reports that these oils are not innocuous and that they have absolutely no direct stimulating action on uterine contractions or tonicity. On the contrary, they inhibit such contractions and even paralyze the uterus. Their action as abortifacients, if they act as such, is no different from that of any other powerful systemic poison, such as phosphorus or arsenic. They have very little if any therapeutic value and do not deserve the place among official pharmacological preparations which many of them hold.

Treatment of Pneumonia by a Polyvalent Stock Pneumococcic Vaccine.—Charteris (*Glasgow Med. Journal*) says:

1. The administration of a stock pneumococcic vaccine had no marked effect upon the subsequent course of the disease.
2. The mortality in the vaccine series (21 per cent.) was higher than in the control series (20 per cent.).
3. The early administration of vaccine did not abort the disease, nor prevent complications.
4. Complications were relatively frequent in the vaccine series, viz., one instance of meningitis, two of empyema, and one of hyperpyrexia.

Influence of Spermolysins and Ovariolysins on Impregnation in Animals.—Alexeeff, Roussky Vratch, May 4, 1913 (*N. Y. Med. Journal*, August 9, 1913) reports in a prediminary communication his experiments on guineapigs, rabbits and dogs which tend to show that the introduction of antispermatoxic or antiovariotoxic serum prevents conception. He obtained the serum by immunizing the animals with testicular or ovarian substance.

Endocarditis in Children.—Gilbert, in the *Boston Medical and Surgical Journal*, July 17, 1913, believes that acute endocarditis should be considered as acute for a longer period than has been the custom. Treatment should be carried out for months, perhaps for years, or until all signs of acute disease have disappeared, and even then until adolescence is passed, or at least a certain amount of restraint should be exacted.

Uterine Hemorrhage Associated with Pellagra.—Peete (*Old Dominion Journal of Medicine and Surgery*, August, 1912) calls attention to a symptom which he has noted in eight cases of pellagra, which consists of marked uterine hemorrhage appearing before the ordinary pathognomonic symptoms. The observation is presented by the writer with the intention of interpreting this sign as diagnostic of the possibility of pellagra.

SOCIETY REPORTS

NEW YORK NEUROLOGICAL SOCIETY

Regular meeting, held at the New York Academy of Medicine, October 7, 1913.

The President, Dr. Smith Ely Jelliffe, in the chair.

A CASE OF MANIC-DEPRESSIVE PSYCHOSIS IN A CHILD

Dr. M. S. Gregory presented a girl, ten years old, who was born in Austria, and came to this country with her parents about three months ago. No history of a psychosis or a neurotic taint in the family or its collateral branches was obtainable. The patient was the third of four children, two of whom died in infancy. Her childhood was apparently normal, and during that period she had the usual diseases, without complications or sequelae. She was considered an average scholar, and her deportment showed no abnormality. She was bright and cheerful, took an active interest in play and associated with children of her own age. However, she was easily angered and excited, and unduly sensitive.

The child's parents stated that she was perfectly well until the early part of August, 1913, when she experienced a great disappointment because her mother would not permit her to go to a party. On the following day she was unusually quiet and sad, complained of headache, and refused food. She insisted that she was weak and had a pain in the cardiac region. She would remain seated in one place without showing much interest.

On August 24, 1913, when she was brought to Bellevue Hospital, a physical examination revealed no objective evidence of a neurological disorder. There were no sensory disurbances nor hysterical stigmata. Mentally she was profoundly depressed, and remained in the characteristic attitude of flexion, with head bowed and body bent forward. Her movements were slow and delayed. She said nothing spontaneously, answered a few questions to the point, but in a rather low tone of voice and after some deliberation. She complied with the usual requests, although slowly. When asked what ailed her she complained of headache and pain in the stomach; said that she could not walk and wished to go home. She would calculate slowly, and occasionally, when she made mistakes and her attention was called to them, she would rectify them. She was well oriented and gave a good account of herself, memory for both remote and recent events being good. There were no hallucinations nor delusions. In the ward she would sit quietly by herself, manifesting no initiative. She took food when it was given to her, but never asked for anything nor expressed any desire. However, she seemed to be in touch with her surroundings and apparently took notice of what was going on about her.

She remained in this condition for several days, but gradually improved, so that on September 13th, about three weeks after admission, she was taken home, contrary to medical advice.

Her mother stated that when she returned home she was in fairly good condition for a few days, but that her depression soon returned. She was readmitted to the hospital a week later in a condition much the same as that on her first admission. However, she soon began to improve, and at the present time she was fairly active, smiled occasionally, spent her time in playing with picture blocks and puzzles, and took outdoor exercise, but she was still quiet and was rather slow in her movements. She did not talk spontaneously, but when addressed she smiled and answered questions in a low tone of voice. She said she now felt well, and was anxious to go home. The Vinet-Simons test showed her scale of intelligence equal to nine and a half years of age.

Manic-depressive psychosis, Dr. Gregory said, was apparently very infrequent in childhood. At least the literature was very meager. It was possible that the disease was more frequent than suspected and that such cases were often unrecognized and mistaken for other disorders. Very often the depression might be associated by the parents, and even by the family physician, with the bodily condition of the child, and these cases naturally rarely came to the attention of the psychiatrist. During the past eleven years, the speaker said, he had seen only four cases under the age of twelve years. Manic-depressive attacks, however, occurring between the ages of twelve and fifteen were comparatively frequent. The youngest of his four cases was a girl of seven, who had the manic phase of the disease, which lasted six weeks and ended in recovery. In another, a boy of eleven, the disease followed a severe fall. He had alternate attacks of depression and excitement, each lasting a week. He recovered in five weeks. The third, a boy of twelve, manifested an attack of excitement of two weeks' duration, with complete recovery.

It was of interest to note that in all of the cases mentioned, the attacks were of rather short duration, which coincided with the observations of Ziehen and others.

The President, Dr. Jelliffe, said that so far as his review of the records showed, this was the first case of manic-depressive psychosis in a child of ten years that had ever been presented or reported at a meeting of this Society. He agreed with Dr. Gregory that such cases might readily be overlooked by the parents or physician, and that the symptoms might be attributed to malaria or constipation or various other bodily ailments.

Dr. William B. Noyes said it was rather difficult to definitely classify a case of this kind without a better understanding of the various gradations of mental depression or excitement associated with mental changes that were not uncommonly observed about the age of puberty. The exaggeration of the normal changes frequently observed in the child at that period of life recalled certain psychoses of later years.

Dr. L. Pierce Clark thought the case was rare in literature only. He had seen two similar cases, though less severe and definite. The case furnished a sad commentary upon our insufficient studies of the psychopathy of childhood.

INTRASPINOUS TREATMENT (SWIFT ELLIS) FOR GENERAL PARESIS

Dr. Jelliffe, in introducing a general discussion on this subject, said the year 1913 promised to be a memorable one in the history of general paresis. It was early in the year that Moore and Noguchi announced the finding of treponema pallidum in the brains of paretics, and demonstrated this fact at the March meeting of this Society. A month later Drs. Swift and Ellis presented the details of their treatment by the intraspinous method. It was in the early part of this year that Drs. Nichol and Hough of Washington announced the successful cultivation of the treponema from the cerebrospinal fluid of cerebrospinal syphilis, which cultivation experiments were also successfully carried out by Noguchi and others. The findings of Moore and Noguchi were verified in various quarters; they were seen in the dead and living condition and in the dead and living tissue; the latter by Förster of Berlin, who obtained them from brain punctures of the living patient. Successful inoculation experiments have been made with living brain tissue of paretics, and the results of these successful experiments have been passed on to other rabbits and the organism isolated, so the chain of evidence has practically been made complete.

Dr. William H. Hough, Clinical Pathologist to the Government Hospital for the Insane at Washington, D. C., said it had now been definitely established, chiefly through serological investigation and through the finding of the treponema pallida in the disease process by Noguchi and Moore, Levaditi, Foster and others, that syphilis was an essential factor in the production of paresis, and although it was quite apparent that it was not the only factor entering into the etiology of the disease, yet our object of treatment, as in all infections, was to relieve the patient of the infectious organism. Therefore, any light that might be thrown upon the nature of the action of the infective virus might be of assistance in the treatment of the disease. This seemed especially important in the consideration of such a protean disease as syphilis.

Concerning the treatment of paresis, the speaker said he would consider only the intraspinous injection of salvarsanized serum, as recommended by Drs. Swift and Ellis. We should bear in mind that we were dealing with a general constitutional disease which involved the nervous system especially, and not a disease confined to the brain alone. We were dealing with a disease process which involved a vital and an inaccessible part of the body, the infective agent being the treponema pallida, probably in an especially virulent form. From his own experience with this method of treatment, which included three cases of paresis and one of cerebral lues, he could make no statements as to the final results, and his object in making this report was to show that they had already obtained results which could only be interpreted as evidence of the efficiency of the treatment for the inflammatory syphilitic process, but whether we could arrest the entire paretic process permanently was still undetermined, although from the clinical improvement obtained in some cases and from a theoretical standpoint the outlook certainly seemed promising. The uniformity of the results obtained thus far indicated to him that it was the most efficient treatment for paresis that had thus far been recommended. The all important point was to institute treatment early in the disease, and this we were now enabled to do with our improved method of diagnosis. This was perhaps more important in paresis than in tabes, inasmuch as a more vital and inaccessible part of the nervous system was affected. For this reason we naturally expected, and, judging from reports, were obtaining, more favorable results in the latter disease than in the former. For syphilis of the central nervous system occurring in the early stage of the disease the speaker said he believed the intraspinous injections were to be recommended, although good results could be obtained in this condition by the proper use of mercury and salvarsan intravenously.

Dr. Hough said the technic he had employed was the same as that originally recommended by Swift and Ellis, excepting that after the first few injections he used 40 c.c. of a 50 per cent. serum instead of 30 c.c. of a 40 per cent. serum. As to after effects, he had observed none of any consequence, although there was sometimes a slight elevation of temperature, and in one case there was on several occasions a marked reduction of the pulse rate. The urine had remained normal in all cases. Thus far he had given thirty-one treatments.

Dr. Homer F. Swift, of the Rockefeller Institute, said that their experience with the treatment of general paresis by the intraspinous method was comparatively limited, and he would restrict himself to a few points in regard to the method. He was interested in the statement made by one of the speakers that after an intraspinous injection, the fluid taken from the ventricle of the patient was found to contain arsenic. This finding was in line with some work done in Dr. John Howland's clinic in Baltimore, where phthalein was introduced by lumbar puncture into the subarachnoid space, and two hours later fluid obtained from the ventricles was shown to contain phthalein—50 per cent. of phthalein as compared with 100 per cent. in fluid obtained at the same time from lumbar puncture. In cases where the phthalein was introduced intravenously, however, there was no excretion into the fluid of either the ventricles or subarachnoid space. It is fair to assume, therefore, that arsenic or other drugs introduced into the spinal canal by means of lumbar puncture reach all points of the cerebrospinal system (at least the larger cavities) which are bathed by the cerebrospinal fluid. Uhlmann had shown that after intravenous injection, arsenic is not present in the nervous tissue in the same proportion as in other parenchymatous organs.

Dr. Swift said that the experience with the direct introduction of neosalvarsan into the spinal canal had shown that severe, unpleasant symptoms followed the use of the drug in this way. Both from a practical and experimental standpoint, the direct introduction of salvarsan into the cerebrospinal fluid is inadvisable. Contrary to the experience of some of those that preceded him, no catheterization has been necessary after the introduction of salvarsanized serum into the spinal canal except where the patient has previously suffered from retention. In most of the cases the bladder symptoms have improved following intraspinous injections.

Dr. Swift said he wished to call attention to the value of the titration method in doing the Wassermann test of the cerebrospinal fluid and the importance of using a large quantity of the fluid. In doing the test they employ up to five volumes as compared with blood serum, and by using these larger quantities the negative reactions became less numerous. The speaker also mentioned the value of making control tests, continuing either intraspinous or intravenous treatment until a negative reaction is obtained. In their own cases the improvement in the reaction usually goes hand in hand with clinical improvement. In some of the cases the fluid has remained negative for a year and a half after cessation of treatment, and there has been no advance in the tabetic symptoms. They have found that the pleocytosis is the first to disappear, the Wassermann is more likely to disappear next, and, finally, the globulin excess. In the four patients with paresis or taboparesis, the clinical improvement has not been very marked. One of the patients, however, is showing very distinct improvement. Patients with an initial, intensely strong Wassermann reaction in the cerebrospinal fluid usually require much more treatment than those with a weaker reaction. Of twenty seven cases of tabes who are under treatment with the combined method, 50 per cent show an entirely negative Wassermann in the fluid; 30 per cent more require the largest quantity of fluid to show a reaction.

THERAPEUTIC PROGRESS

Action of Opium on the Human Gastrointestinal Tract.—Mahlo, *Deutsches für Klinische Medizin*, May 31, 1913 (*J. A. M. A.*, July 5, 1913), determined by means of X ray pictures the effect of opium on the intestinal tract. Its greatest influence was on the large intestine, retarding the functioning so that the food remained in the intestine for twenty-four to thirty-three hours. The effects on the small intestine was also considerable, its action being delayed from five to eight hours. The action on the stomach more inconstant. The mortality was not markedly decreased except in one case. The peristaltic motion was first stimulated and then depressed. The sphincter of the pylorus was contracted and the muscle tone so depressed that dilatation, particularly of the fundus, took place. Opium seemed to have a more intense effect on the intestine when it was used in conjunction with castor oil.

Subcutaneous Injections of Phenol in the Treatment of Tetanus.—Ascoli, in the *Policlinico*, Surgical Section, July, 1913, reports seven cases reported in detail in which tetanus developing after an incubation of from four to six days was treated with subcutaneous injections of a 3 per cent. solution of phenol (carbolic acid) and the patients promptly recovered. In one case alone the incubation had been fourteen or fifteen days. Ascoli comments on the efficiency of this method, introduced by Baccelli, and states that its simplicity has cooperated in preventing its wider adoption: people put more faith in things that are mysterious and difficult to obtain. Another reason for its restricted use is because those who have applied it have not used the proper doses, restricting the dose to 0.05 or 0.1 gm., while Baccelli insists on large doses, beginning with 0.2 or 0.3 gm. and increasing to 0.8 or 1 gm. per day. Any dosage less than this should not be called the Baccelli method. The seven cases here cited are from the experience of six clinicians, including the Russian, Gulaew of Kazan.

Luminal.—Blichert, *Ugeskrift für Leger*, July 3, 1913 (*J. A. M. A.*, Aug. 16, 1913), states that in five of the thirteen cases in which he administered this hypnotic, signs of intoxication were evident; in two no effect was observed. In six the drug had the anticipated action without by effects, but in one case after two weeks, and in four earlier, there were unmistakable signs of intoxication. In three in the latter group the luminal had no therapeutic influence at all. He cites communications in German literature in regard to a toxic action for luminal: Eder had two cases of luminal eruptions in 150 and Graeffner two in 72 cases. The exanthem in Blichert's cases was very pronounced; in one after it had subsided it reappeared in full intensity after a week's interval without more of the drug having been taken in the interim. The eruption occurred in three of the four cases of pronounced toxic action. The dose 0.2 or 0.3 gm. three or two times a day, or 0.1 gm. in the morning and 0.2 gm. in the evening. In some of the cases veronal had been given at the same time or alternating with the luminal, but in two of the cases with most pronounced toxic action the luminal alone had been given.

Lecithin and the Opsonic Index.—Strubell, in the *Berliner Klinische Wochenschrift*, June 10, 1913 (*Medical Record*, July 5, 1913), reports having tested many drugs as to their influence on the opsonic index. No influence was exerted by crystallized albumin or Witte peptone. He was, however, much surprised to find that a lecithin preparation exerts a marked activity in this direction. This was doubtless due to lecithin alone, although the special preparations employed contained iron and other ingredients. The index was tested against staphylococci and tubercle bacilli. The action was maintained for an unusually long time.

Salvarsan Treated Mothers and Their Children.—Wolff, in the *Deutsche Medizinische Wochenschrift*, June 10, 1913, quotes at length a case reported by Holth, and cites one of his own in which the mother had been early and persistently treated with salvarsan during her pregnancy. The children showed no signs of lues at birth, but both died later of undoubted syphilis. The author concludes that nothing is known of the effect of salvarsan on the child under such circumstances, and that the failure to show signs of the disease at birth or during several months thereafter is no surety that it may not later appear in severe form.

Neosalvarsan.—Van Riempst, *Medical Record*, August 9, 1913, gives his personal experiences with neosalvarsan. He has found it preferable to salvarsan on account of its equal efficacy, lesser toxicity and easier mode of administration. In early syphilis timely injection can prevent the appearance of secondaries. Neosalvarsan is not a positive cure for syphilis, but is superior to mercury, potassium iodide, or mixed treatment, and should always be resorted to when lesions persist under such treatment. The intervals between injections should never be shorter than a week. The writer adds that the introduction of a little air into the vein has no deleterious effect on the patient.

Byeffects of Hexamethylenamin.—Cuntz, *Münchener Medizinische Wochenschrift*, July 29, 1913, warns that this drug (urotropin) cannot be regarded as absolutely harmless. With the usual dosage he has witnessed hematuria and albuminuria develop in two cases. In the first the bladder was evidently seriously irritated; in the second case albuminuria, leukocytes and epithelial cells were found in the urine after administration of hexamethylenamin, subsiding on suspension of the drug and returning on its resumption.

Apomorphin for Vomiting.—M. Field, Canby, Minn. (*Journal A. M. A.*, November 1), reports a cure of a severe case of vomiting of pregnancy by the use of 1/36 of a grain of apomorphin in a teaspoonful of water. He has used this in other cases of vomiting or nausea with like good results. In the minute quantities used it quiets the inflamed gastric mucosa and produces no ill effects.

The Salt Pack in Rheumatic Gout.—Dr. Jonathan Hutchinson says (Polyclinic) that he knows of no remedy so effectual in getting rid of the irritability and synovial infusion, in connection with rheumatic gout, as the salt pack. This consists of flannel, soaked in a saturated brine of common salt, which is wrapped around the affected joint, covered with oiled silk and a bandage, and kept on the whole night. It should be applied every night until the cure is effected.

MISCELLANY

VALUE OF MENTAL SUNSHINE

It is every one's duty to be as happy as possible. Happiness and health go hand in hand. The less grumbling an individual does, the fewer illnesses he will have. The more happiness he extracts out of life the more healthy will be his individual condition.

These facts are recognized by psychologists and medical practitioners alike, at the present day. In fact, the medical practitioner of to-day, to be successful, must be something of a psychologist himself. The time of funereal faced doctors has gone. It is quite the duty of this useful class of citizens to radiate mental sunshine wherever they go.

While this is true of the physician, it is of the utmost importance that the patient, also, be cheerful. Of course, he will be more so if mental sunshine, instead of funereal gloom, is allowed to permeate the sick room.

But individual results are not the only ones obtained through a judicious use of mental sunshine. The effect of the cheerfulness of an individual is much more far reaching. If each individual or a majority in a community would radiate happiness and good cheer, that community would be healthy—and just in proportion to the community cheerfulness would be the community health. What is true of the individual and the community is true of the country, State, nation and world. If the individual is happy and healthy, the community will also be happy and healthy. If communities are cheerful, and their health is good, the happiness and health of the country will be better conserved. And so on, through the State, nation and world at large.

Remember that, in the crusade of cheerfulness against ill health, "every little bit helps," and be prepared to do your little bit on every possible occasion. Happiness and contentment are bound to come sooner or later. That is the end for which all mankind is striving. Your happiness and health can hasten this happy millennium. You might just as well get in the happy crowd, for all the "grouchers" are bound to be left behind.

Nothing did so much toward preventing a widespread panic during the recent financial depression as the general optimism of the vast majority of business men throughout the entire country. Had the people been pessimistic, a panic approaching a calamity would have ensued.

AMORPHOUS PHOSPHORUS IN SENILE ARTERIOSCLEROSIS

The author has used the red amorphous phosphorus in senile arteriosclerosis for several years. Given originally as a substitute for ordinary phosphorus in senile debility it was found that it was eliminated as amorphous phosphate of lime and that the lime elimination was thereby increased. Weil's experiments showed that the lime elimination in arteriosclerosis was diminished. Phosphorus has the property of combining with lime and increasing the lime assimilation. In the small doses which can be given when the ordinary phosphorus is employed the phosphorus will combine with the lime of the food and increase the amount of lime salts in the body. When given as amorphous phosphorus the dose is two grains or more several times a day, and with a lime-free diet the lime required for the combination necessary to secure the elimination of the phosphorus excess, is drawn from the abnormal lime deposits. This appears to be the rationale of the treatment and explains the good results obtained from its use. From *"Diseases of Old Age," by I. L. Nascher, M. D., to be published shortly by P. Blakiston's Son & Co., Philadelphia.*

THE MYSTERIES OF SLEEP

Sleep is one of those peculiar mysteries the solution of which up to the present time is unknown to both the scientific specialist and the man on the street.

The *London Pictorial* tells us that many curious facts have been recently discovered abont it by the world's savants. For instance, when we sleep the lower half of us weighs more than the upper half. The brain is lighter and the legs are heavier. Experiments have shown that if a man goes to sleep on a bed suspended exactly at the middle point of his weight his head begins to tip slowly up and his feet to go down. This is due to the fact that when we sleep the blood in the brain goes off to the other parts of the body. The moment the brain wakes to life again it draws the blood back.

It happens when one is fast asleep some part of his brain or several parts of it may at the same time be awake. A man may walk, talk, sing or solve mathematical problems, and yet at the same time be safely in the land of nod.

It seems hard or impossible to decide what part of the brain does sleep. Our sense of time, for instance, is stronger when we sleep than when we are awake. Experiments conducted some years ago on a number of men and women between the ages of 20 and 30 showed that 60 per cent. of them were able to wake up in the morning at any time they had decided upon the night before. As the

Pictorial expresses it, the resolve seems to wind up something in the subconscious brain, and when the hour has arrived the clock gives in some mysterious way the alarm and the eyelids open.

Another curious fact about sleep is that the further the part of the body is away from the brain the less soundly it sleeps. A touch on the toe will awaken one much more readily than a touch on the shoulder.

ABSOLUTE DEATH TEST

A remarkable new method of testing absolutely whether an apparently dead person is really dead, and thus avoiding the possibility of premature burial, just announced by Dr. Icard of Marseilles, has been received with great interest by his colleagues in Paris.

Dr. Icard's system depends on the question of whether the blood is still in circulation or not, and consists of a small quantity of fluorescein, which is quite harmless, but one of the most violent coloring matters known.

If there be the slightest motion of the blood the fluorescein, carried into the circulation, stains the body a vivid golden yellow, while the eyes become a deep emerald green. If, on the other hand, there is no movement of the blood, the coloring matter is not dispersed, and produces no effect. Half an hour is stated to be enough to make this test.

It may be added that fluorescein is one of the most transitory dyes known.

THE ORAL ADMINISTRATION OF ANTITOXINS

In the *Journal of Infectious Diseases,* February 18, 1909, C. T. McClintock and W. E. King report researches made in the oral administration of diphtheria antitoxin. We quote from the article:

"Eleven guinea pigs were given one gram each dry diphtheria antitoxin. The stomach was then washed out within an hour, and the pigs were injected with three fatal doses of toxin. Only two pigs died."

This experiment would indicate that within a little more than an hour a guinea pig will absorb enough antitoxin from the stomach to protect it against three fatal doses of diphtheria toxin.

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ORIGINAL ARTICLES

THE CORRELATION, UNIFICATION OR SYNTHESIS OF CHEMO- AND PSYCHOTHERAPY

By Henry S. Munro, M.D.
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(*Concluded from November*)

The conduct of each and every individual, in whatever department of life, is the logical outcome of the aspirations of primitive or purely animal instincts. It is likely that these are one and the same thing, for, in the last analysis, all life centers down to and resolves itself into the problems of self preservation and preservation by propagation of the species; for the desire to preserve the species by the begetting of offspring is but a desire, from another point of view, to extend our life beyond our present existence, to project our influence into future generations, in keeping with the law of evolution in general. The importance of this line of thought to the successful practice of medicine cannot be exaggerated.

It is not my purpose to go into the technic of the methods employed for the guidance of these two fundamental instincts in the therapeutics of the various diseases of mankind more than to indicate its general scope of application. These conclusions can briefly be summed up as follows:

(1) By bringing the lives of human beings under the guidance of science, such as is available at the present time, we have a therapeutic measure that is applicable to the treatment of all disease, at least in all cases where we are able to secure the cooperation of the patient, and this reeducation constitutes psychotherapy.

(2) While psychotherapeutic measures do not constitute a complete system of medicine, the greater proportion of the cases that physicians are called upon to treat can be successfully relieved by this means alone, without either surgical, medical or other therapeutic adjuncts.

(3) There are no diseases that can properly be called psychic or

somatic, since both physical and psychic components enter into the makeup of every organism, and of each disease process.

(4) The nutritive or self preservative instinct should be regarded with as much consideration in the treatment of the psychoneuroses as the instinct of species preservation, since we must treat the individual as a biologic unit, activated by these two fundamental emotions.

(5) Disease should be regarded as a misadaptation to environment, in which social, economic, dietetic, bacteriological and other environmental factors are the exciting causes.

(6) Anything that interferes with the highest expression of the entire personality, physical, mental, moral, is the predisposing cause of disease, because it lessens the cellular psychophysical potential.

(7) Psychotherapeutic measures consist in bringing to the aid of the intelligence of the patient, not only such measures as will heighten the resistive powers of the cells comprising the composite individual, so as to bring about a cure of present conditions, but it also consists of so readapting the individual to life that the treatment constitutes prevention for the future.

(8) The measure is as valuable in the treatment of all classes of professional work as it is in the therapeutics of socalled nervous and mental diseases, since it is a diseased individual that we are called upon to treat, and this embraces all of the elements comprising the composite individual.

(9) In the gastrointestinal derangements, resulting in alimentary autotoxemia, with the ensuing cardiovascular and glandular diseases, we have a specific in psychotherapy.

(10) In the treatment of uncomplicated pneumonia, during a period of nine years, psychotherapy and medicinal agencies for disintoxication purposes described in other writings, in my hands proved a specific.

(11) My results were equally as successful in the treatment of typhoid, used in conjunction with other measures.

(12) Psychotherapy is applicable as an inestimable adjunct in the treatment of all of the infectious diseases, as a means of heightening cell resistance, though I strongly commend other well proven medicinal, chemo- and serotherapeutic measures.

(13) In constitutional diseases, socalled, we have herein the most efficacious remedy, because of our ability to raise the psychophysical potential of all the cells in the organism.

(14) In the diseases of the digestive system of adults it is equally as successful. We have herein a positive remedy for indigestion, constipation, autointoxication and their resulting sequelae.

(15) In diseases of the blood and ductless glands, we have herein measures that should be used in all cases, in conjunction with other therapeutic agents.

(16) In diseases of the respiratory system we have a measure unequaled by any other demonstrated measure.

(17) In diseases of the nervous system, mental diseases, and diseases of the skin, we have in psychotherapy the *sine qua non* to success, used in conjunction with other specific treatment.

(18) Diseases of the eye, ear, nose and throat, being so largely of constitutional origin, or caused by autotoxemia, and abnormal emotions, furnish a field for the most splendid results from the aid of psychotherapeutic measures.

(19) Psychotherapy might be summed up in the following definition: The application of the principles of science for the establishment of habits of right living, for the heightening of normal cellular life, and for the readaptation of the individual to his environment.

(20) Among the most prominent enemies of society at the present time, I believe the chief, resulting in the greatest destruction to human life, to be (1) The incitement of fear by theological dogmatism and superstition, (2) Ignorance of sexual life and laws, (3) Poisonous microbes, and lack of knowledge of how to escape their destructive action, (4) Pathology and diagnosis used as a means of controlling patients through the incitement of fear, (5) Ignorance in general, and the inability to exercise one's own self activities as the consequence.

(21) The possibilities to be derived in the way of saving life by psychotherapy, or dynamic educational therapy, are far beyond what I have faintly indicated in this paper. Its successful application depends entirely upon the individual physician's dominating motive and his personal qualification.

(22) The hospital treatment of the functional derangements due to ignorance, fear, and laziness, by far the most important causes of disease and unhappiness, is an outrage upon society, because ineffective.

(23) The study of diseased end products in hospitals is as nothing as a means of professional education in comparison with the opportunity for getting acquainted with the causes of the abnormal psychological and pathological physiology furnished by observing the habits of the people in all departments of life, living in any American city of fifty thousand inhabitants or more.

(24) Violations of right living are the sole cause of disease. The remedy consists of education, but the teaching that is offered by the medical schools of the present day, where too much attention is

given to the study of pathological anatomy, and too little is given to methods of correcting the abnormal psychology, and to training the individual patient away from the habits which cause the pathological physiology, resulting in gross pathological anatomy, is not what I mean by "education."

(25) In the present state of our civilization, society is yet under the dominancy of the crude animal instincts, particularly as manifested in medicine and religion, but courageous intellect is dawning, and the future is full of promise that this true moral element will so shine upon the dark places wherein now lurk impotent professional leaders, that there are those of us who believe that the highest psychic potentialities in the evolving character of mankind will yet predominate and win in the game of life.

(26) The facts derived from science, the observed order of things, must win, and the triumph over ignorance, selfishness and superstition will be a victory for all mankind. All that is needed is physicians qualified with knowledge and moral courage to do the work that the employment of such measures require, and patients of sufficient intelligence to be willing to cooperate with the physician in the application of such rational therapeutic procedures. Spaulding tells us "The mass of mankind, if we pass the whole race in review, are sunk into gross ignorance, and even in civilized nations, where education is free, the multitude have but a crude acquaintance with the elements of knowledge. Their capacity to read and write hardly serves intellectual and moral ends; and such learning as they possess seems only to weaken their power to admire and love the best in life."

(27) The task of applying the theory of evolution to the practical needs of the individual patient has hardly begun. Evolution is very largely a matter of adaptation to an ever widening environment, and herein lies the true solution of the immunity problem, as well as the key to many other evolutionary problems. We are either born immune to the factors which would hold in check and fetter a weaker individual through the operation of natural selection during racial existence, or we must acquire immunity by a process of variation and selection during our individual life.

(28) As C. J. Bond expresses it (*Brit. Med. Jour.*, Feb., 1912): "When narrowed down to essentials, there are only three ways of undergoing adaptation to environmental change, just as there are only three ways of becoming immune to disease:

"(1) Either adaptive change is entirely the result of external influence and the organism is as clay in the hands of the environmental potter;

"(2) or the organism initiates and directs its own adaptation independently of outside interference;

"(3) or adaptation is the result of the interaction of environmental influence and cell potentiality."

The problem for the social reformer is how to promote the adaptation of the social organism to its environment without sacrificing the interests of the life of the individual during the process of reform. The problem for the physician is how to bring about immunity and resistance in the individual organism without at the same time injuring or destroying the body cells and so producing illness or disease itself. Both alike should try to accomplish the result by stimulating the exercise of this capacity on intracellular and intraindividual lines, and should only resort to intercellular and interindividual struggle with its attendant destruction of competing units when intraorganismal methods have failed or are incompetent to produce progress.

Hope for future progress lies in the extension of the method of adaptation and "use acquirement" and environmental control; in the improvement of environmental conditions and the banishment of diseased organisms from the human environment by measures of external sanitation; and in the destruction or reduction of the virulence of disease organisms by vaccine and chemotherapy, if they should obtain a foothold in the body.

(29) Whatever may be accomplished by vaccine and chemotherapy, the practical results achieved by making employment of the intellect as an instrument of power in the cure of disease by the reestablishment of health, are sustained by physics, chemistry and biology, as well as by psychology and clinical observation. Everyday experience is proving that just in proportion as man is freed from the dominancy of instinct, of passion, of needs, desires, wants, wishes and feelings, and his life guided by intellect for the purpose of acquiring and maintaining the highest possible degree of psychophysical potential, just in that proportion does he become a capable, happy, healthy individual, free from weakness, unhappiness and disease.

There is but one way by which this may be accomplished, and that is by teaching each individual patient how to achieve physical, mental, moral, social and economic independence and happiness; to equip him or her with such knowledge as will enable them to find and fill a place of usefulness in the world. Success will depend entirely upon our own personal qualification, upon such knowledge of science, practical life, of peoples, trades, professions, vocations, philosophies, religions and other factors that contribute to the development of human beings, as we are able to command.

(30) Self mastery is humanity's highest, greatest, noblest achievement, and the application of scientific knowledge to promote this end, operating on and through the individual's intelligence, as an adjunct to the other measures generally employed in medical practice, is designated today as psychotherapy.

(31) The greatest factor against which evolving man has now to contend is not starvation, or against other animals, nor against the inanimate forces of nature, but against the special conditions imposed by the evolving man himself in the competition for mental ascendancy, for leadership. Every human being is born with a certain measure of psychophysical potential capacity capable of being awakened into actuality by suitable stimuli, but in the absence of these, remaining forever dormant. Intelligence, as distinguished from purely instinctive action, implies educability, and a high order of intelligent action implies a correspondingly high educability. Lacking the necessary stimuli, psychophysical capacity may for long ages remain dormant, unrealized. The problem that most concerns all of us today, both physician and patient, is how to obtain the necessary stimuli. It is the problem of educators in every department of life.

(32) We must study the individual patient, trace the cause of his disease wherever it may take us, and teach him or her to conform to the physical, physiological and psychological requirements of the normal human life until health will become a habit and happiness the rule of his life. Such training embraces all that contributes to the development of the entire individual and seeks to make him an athlete in body, mind and character. In short, we must teach each individual patient how to live.

(33) Teach him (1) what to eat; (2) what to drink; (3) the kind of work and exercise best adapted to his individual personality; (4) give him a sound philosophy of life, free from dogma, cant and narrowness; (5) inform him concerning the value of the right kind of companionship and the necessity of self education. These are the five life essentials, without which no human life is complete, the absolute necessities of a life of health and happiness.

(34) To do the work required today, at least 200,000 physicians in the United States, with our present population, would be necessary, if only they were qualified and the people could be made to realize the necessity of making the proper use of them.

Let us be big enough to take a broad and comprehensive view of the subject under consideration, and see if our position is sustained from the individual, cosmic and social teachings of science. Over a century ago, Lamarck formulated a law which we are just beginning to appreciate: "In every animal which is still undergoing development, the frequent and sustained use of one organ increases its size and power, whereas the constant neglect of the use of such organ weakens and deteriorates it, so that it finally disappears." He insists that organization precedes function. He affirms that only function, *i.e.* action and reaction, modifies the organ; or, in other words, that organisms are modeled by the action of exterior forces acting upon them. It is in this sense only that function may be said to make an organ.

Leduc* tells us that life is a correlation of functions and of energy transformations, a correlation which is conditioned by the form, the structure and the composition of the living being. That life may, therefore, be said to be conditioned by form, *i.e.* the external, internal and molecular forms of organisms. That life is not a substance, but a mechanical phenomenon; that it is a dynamic and kinetic transference of energy determined by physicochemical reactions; and that the whole trend of modern research leads to the belief that these reactions are of the same nature as those met with in the inorganic world. It is the grouping of physical reactions and their mode of association and succession, their harmony, in fact, which constitutes life.

Heretofore physicians have studied the various parts of the human body, and they have obtained a knowledge of the structure of its separate cells and organs. They have, in consequence of this mode of investigation, treated this or that organ, such as heart, kidneys, liver or glands, directing their therapeutics, whether medicinal or surgical, to reach these parts only.

Today we recognize that no organ or structure exists for itself alone, but that every structure, organ and part functions in perfect correlation with the brain cell elements, and that these collectively are designated as the personality. In other words, we are more and more coming to the viewpoint of seeing the individual whole, and seeing him continuous, recognizing that what he is at any given moment, whether in health or disease, is the end product of all that has gone before him. He is regarded as a mode or manifestation of life, intimately dependent upon his environment, his thoughts and his habits.

Lamarck expresses it in the following formula: "Species have only a relative constancy, depending on the circumstances of the individuals. The individuals of a given species perpetuate themselves without variation only so long as there is no variation in the circumstances which influences their existence. Numberless facts prove that when an individual of a given species changes its locality, it is subjected to a number of influences which little by little alter, not only the consistency and proportion of its parts, but also its form, its faculty, and even its organization; so that in time every part will participate in the mutations which it has undergone."

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*The Mechanism of Life.

We have reached the most auspicious period in the history of the medical profession, as well as that of our commonwealth. We are upon the hour, as it were, before a great revolution. In fact, the revolution is on, and individuals, according to their intelligence and bravery, are taking sides in the conflict.

Disease is a misadaptation to environment, matters not what be the terminological designation. Diagnosticating pathological lesions, herding human beings in hospitals, cutting out gross diseased manifestations, and placing the individual under conditions where all of the bodily resistance is being trained out of him, is an outrage upon human life. It is the habits of the human being that determine its character, physical or mental, whether sick or well.

A human being is made up of the same chemical elements as the minerals; he is a current of matter and energy, both of which change from moment to moment while passing through the organism. And as is the human being, so is every cell in his body. It is only a transformer of matter and of energy, be it brain cell, a gland, a muscle, bone or skin cell. Man is a cosmos, made up of millions of individual cells, each with a life of its own, though the life of each is mutually dependent upon every other cell in his body for its own harmonious existence.

And as is man, so is the medical profession. Each is a unit with a life differing from that of the entire professional body, though the unit is relatively dependent upon the whole collective group for its own satisfaction and harmony—life. And so is the institutional unit, the medical school, in its relation to the entire professional body, and to the larger social organization.

Be it ion, or electron, cell, or organism, professional or social, or world, or the countless planetary systems, comprising the entire cosmos, everything that is conceivable is but a transformer of matter and energy, infinite and limitless. Call this energy force, matter, mind, body, spirit, soul, life, or God, the name matters not. It is life itself, used to perpetuate and transmit life, ever present, indestructible, constantly changing, never still, with illimitable modes of expression.

Thus the unity of mankind, of institutions, of human activities, and of worlds, since all that is can be conceived as but a mode of energy, a form of matter, a manifestation of life. It is action that counts. We know a thing by what it does and by what it is capable of having done to it. The energy of a given body is the amount of transferable motion stored up in that body, and is measured by its capacity of producing mechanical work.

Energy presents itself to us in two forms, potential and actual. Potential energy is slumbering energy, energy localized or locked up in the body, be it designated psychic or physical. In order to transform potential energy into actual energy, there is required the intervention of an additional awakening, stimulating, or exciting energy from without. This stimulating energy may be almost infinitesimal in amount, merely spoken words, and bears no qualitative relation to the amount of energy transformed. It is the small amount of work required to turn the key which liberates an indeterminate quantity of potential energy. Actual energy, on the other hand, is energy in movement, awake and alert, ready to be transformed into any other form of energy without the intervention of such external stimulating force.*

It must, therefore, be evident to the logical mind that the various theories of medical science and of medical art are only methods devised for the transformation of matter and energy, be our agents called chemical, serological, medicinal, surgical, electrical, dietetic, physiological or psychological. We need all of these devices or inventions as a means of saving human life, for the promotion of happiness, and for the conservation of the race. That any medical school or system of treatment, institution, cult or hierarchy has the monopoly on the methods of the transformation of matter and energy, or of teaching the individual how to get, how to gain, how to achieve, how to express and how to maintain the highest psychic and physical potentialities in the cells of his body, as a means of making them immune to the destructive influence of pathogenic

*In a lecture delivered at University College on "Mental Energy," Spearman said that the whole of the earlier psychology, and a large part of it now, was devoted to quality of mind and not quantity. They were now turning their attention to quantity, and it was opening up a new sphere. It was possible now for every one to measure the amount of his or her mental energy. At present there was a great deal of discontent and class hatred The lower classes complained that the upper classes obtained all the best jobs, and contended that they were quite as well equipped and that it was only their circumstances that kept them out. The upper classes, on the other hand, said that they were put there because they had more brains and were better able to do the work. But the day would come when there would be no question of persons' abilities. They would be measured to several decimal places long before they left school, and if the best positions were given to the persons with the largest amount of mental energy there could be no complaints as to other brains being more suitable.

germs or other harmful factors in his environment, I most emphatically deny! *The question of personality can never be eliminated!*

We need every method of attacking, inhibiting and limiting the destructive forces of nature, be they social, educational, parasitic, microbic, dietetic or occupational, as a means of conserving human life, and we should not forget the most helpful of all therapeutic resources, *i.e.* that of teaching the individual how to achieve the highest possible degree of psychophysical potential in the cells of his body, and of dealing with each patient by such methods as will transform the potential energy in the cells of his organism into kinetic or actual energy consciously expressed, and in this manner truly equip each patient seeking our aid as an intelligent human being living in harmonious relation to his environment. What matters the name by which our therapeutic measures are designated, be it catylizer, hormons, toxin, enzyme, drug, education or stimulus? By whatever means we may employ, the results are in conformity to a common law, *i.e.* the reaction of the organism in function to the stimuli of environment.

In the consideration of every therapeutic measure, the question should be: "Does the result justify the means employed?" In other words: "Does the present system of medical education serve the needs of the larger social organization?"

Take notice, it does not: Does our present system of medical education serve the needs of the surgeon, or of the specialist, or of the "Hospital Machine," or of the teachers of medicine? Does it meet the necessities of those of our fellowmen whose lives are entrusted to our care?

To some of us it is apparent that only a small handful of our medical schools are giving sufficient attention to the employment of education and reeducation, "the sciences of mind," as applied to the general practice of medicine, that these measures so preeminently deserve.

Seven hundred and fifty thousand people in the United States are dying annually of the socalled degenerative diseases, and with the incontrovertible evidence staring us in the face that half of these—that is, 375,000—would not die if the average health, from middle age upward, was as good as it was 30 years ago, notwithstanding the increase of the general average of human longevity. We should not be disposed to take such conditions in complacent acquiescence and not try to better our therapeutic results.

Furthermore, "Sir James Critchton Brown, the President of the Section of Psychiatry, at the recent International Congress, stated that all countries from which trustworthy statistics were available showed an increase in the number of lunatics out of proportion to the increase of the population. Comparing the United Kingdom of today with 1859, the notified insane had increased by 276 per cent., while the population had increased by 87 per cent. This disquieting fact, says he, cannot be fully accounted for by more accurate registration, or by accumulation in asylums of chronic patients. There seems to be no good reason why insanity should have increased while the health and material condition of the people had markedly improved. The segregation in asylums of a growing number of insane during the period of sexual activity ought to have diminished the influence of heredity. There are also other factors which should have checked insanity, the diminished consumption of alcohol, the better treatment of tuberculosis and the diminution of sepsis and syphilis."

The situation is equally as disquieting, if not more so, here in the United States, and there are some of us who are unwilling that the present useless wholesale loss of life should continue without raising a word of protest. We are, furthermore, unwilling that the general practitioners of America surrender the lives of our citizens to be treated in parts only, by the growing number of specialists, to the neglect of those therapeutic factors of an educational, dietetic and occupational character, which contribute to the evolution of the composite individual.

As one who has nearly completed his twenty-third year in the profession of medicine without having found it necessary to commit a single patient to an asylum, with a fifth year nearing its end without the death of a single patient, with the encouragement of physicians in every department of medicine during the nine years devoted to the actual work of instructing physicians in the employment of psychotherapeutic principles, *I declare that the medical school that does not teach the employment of psychologic measures, such as are available at the present time, as applied to the entire practice of medicine, in conjunction with other well proven therapeutic resources, is falling short of its duty to the larger social organization.*

It is habit that makes each human being what he is, be he sick or well. "Habit training is the backbone of psychotherapy." Pathological processes are as natural as physiological processes. I defy any one to show me a single disease process, be it "mental" or "physical," that is not the outcome of ancestral or individual habits, resulting from environment conflicts.

Flexner has pointed out that all germ producing processes are chemical (they are biochemical), and we are acting in as perfect harmony with the present progress of medicine to correct the cause of the degenerative diseases, which give an annual mortality of 750,000 in the United States, as we are when endeavoring to make a direct attack upon the invading parasites which are found to be the etiological factors of infectious diseases.

But just as in the case of the infectious diseases, we are going to the cause back of the bacteriological origin of such diseases, so must we look for the cause which is responsible for the incipient disorders of metabolism, correcting the gastrointestinal derangements which contribute to the development of intestinal stasis, and other manifestations of food poisoning. The disastrous result to the cardiovascular system, to the glandular organs, the motor and sympathetic nervous system, the liver, pancreas, respiratory organs, the joints, the muscles, the skin, the special sense organs and the genitourinary apparatus; in fact, to the functions of every cell in the body, arising from intestinal autotoxemia, lowering as it does the vital resistance of the entire organism and inviting bacteriological invasion, as well as predisposing the individual to nervous and mental deterioration, are as well demonstrated as is the fact that the spirochete causes syphilis, that the malarial protozoa causes malarial fever, or that other well known parasites cause diphtheria, meningitis, gonorrhea or any other specific disease. It is simply a question of equipping the individual with such knowledge as will enable him to adapt the healthful habits of life.

I again quote Leduc: "Every living being is a transformer of energy. The lower animals and man himself receive from food and air the potential energy which becomes actual under the process of oxidation. This chemical combustion is the source of all vital energy. The ancients aptly compared life to a flame, and Lavoiseur has shown that life, like the flame, is maintained by a process of oxidation. The energy derived from food and air is restored by the organism to the external world in the form of heat and mechanical motion. The celebrated experiments of Atwater show that there is an absolute equality between the energy obtained from the oxidation of the various ailments, and the sum of the caloric and mechanical energy liberated by a living being."

"Man obtains his supply of energy either directly from the vegetable world, or indirectly from vegetables which have passed through the flesh of animals. Vegetables in their turn obtain substance from the mineral world and their energy from the sun. The salts, the water and the carbonic acid absorbed by plants possess no store of potential energy. Whence then can they obtain this energy which they transmit to animals and man, if not from the sun? The energy of the solar radiations is absorbed by the chlorophyll of the leaves, and stored up in the organic carbohydrates formed by the synthesis of water and carbon. Chlorophyll has the peculiar property of reducing carbonic acid, and uniting the carbon with water in different proportions to form sugar and starch, whilst fats and vegetable albumens are also formed by an analogous reaction. All these complex bodies are stores of energy; the vital processes of oxidation do but liberate in the human body the energy which the chlorophyll of plants has absorbed from the solar rays."

"We must look then to the sun as the direct source of all the energy which animates the surface of the earth. The sun looses the winds, and raises the waters of the sea to the mountain tops, to form the rivers and torrents, which return again to the sea; the sun warms our hearths, drives our ships and works our steam engines. There is no sign of life or movement on our planet which does not come directly or indirectly from the solar rays."

With this power exerted by the sun, around which our earth revolves, how dependent human beings are upon institutions, hospitals, churches, manufactories, vehicles, tools and other products of the creative specialist in order to subdue or hold in check the various units of society who lack the initiative to take their lives into their own hands! Is it not a fact that ignorance is the greatest foe to mankind, or is it selfishness?

We cannot dodge behind "heredity and environment" and pretend to be in the life saving business. We are going to boldly hunt down the cause of disease, wherever it is to be found, and we are going to tactfully enlighten the unsuspecting or ignorant individual in relation to cause and effect. If our legislators do not furnish the conditions of environment in accordance with the rules of our democratic government, we are going to enlighten the people and put men in their places who will give each and every American citizen a fair show in the world. In the meantime, until these larger social problems are equitably solved, we are going to do the work that is nearest at hand, in full confidence that the conditions under which man lives are being made better by our efforts. The individual has a problem, however humble his sphere in life, and we are helping him to find his way in the world.

Pardon this digression wherein I hinted at the idea that our bodies are chemical laboratories, in which there are such compounds, acids and bases as constitute all other unstable organic chemical bodies, which are the result of the changes going on in the body as a whole, or in the individual cell, in taking in new matter, fixing and changing it, and throwing it off again. These processes are what are known today as metabolic processes, with its subdivision into catabolism and anabolism. These splitting and tearing down and building up processes are always going on. The bacteria themselves are indispensable to the digestion of some of the foods that we eat, especially the proteins, and the important thing to know is that too much decomposition of food of whatever kind in the alimentary canal, without sufficient muscular exercise and without the assistance of out of doors air and sunshine to bring about the combustion sufficient to burn it up, is going to result in the same thing that happens when a furnace is overloaded and the air is excluded, from one point of view; and from another, it brings about the same processes that happen in the garbage can when it is not emptied completely and frequently enough. Nor does it matter so much what the individual eats, the greater the variety the better, since his food is simple and nourishing.

It is my humble opinion that fear is responsible for more deaths in the world today than any single factor, and that the emotional factor figures as a contributory cause in all diseases, acute or chronic, as well as in the development of gross pathology.

In the 62 cases of various physical, nervous and mental manifestations of disease associated with intestinal stasis, to which reference has been made, treated by the method of fasting and reeducation, I have the first ill effect to be evidenced, with the result that there were no mortalities and a marked improvement in the mental and physical condition of every patient, to the extent that they were enabled to resume the normal duties and responsibilities of life.

In all of this list I found that emotional manifestations were exhausting the brain cell potentialities and interfering with its function as the central battery which stores the energy that presides over the entire physiological machinery. As before stated, among these were those with cardiovascular manifestations of disease, high blood pressure, or low pressure associated with cardiasthenia, as the result of abnormal emotions, as well as degenerative changes in the kidneys, liver, pancreas, blood, ductless glands, respiratory organs and central nervous system.

All emotions are associated with one or the other of the two fundamental instincts, *i.e.* the self and the species preservative instinct. I repeat again, the result of reeducating these patients so to equip them to express such emotional impulses by work and useful endeavor, or to guide such instincts by reason not held in abeyance by fear, dealing with the facts as they are in this world as demonstrated and taught by the doctrine of evolution, has resulted in the cure of epilepsy, the depressive psychoses, as well as the psychoneuroses and other mental and physical conditions to which we have given a thousand names, which are not diseases, but are the logical outcome of environmental influences, which are exercising life stifling and degenerating influences upon our present civilization.

The conditions of medical practice have so changed that we need the "mite" of the humblest of its members, and I speak in behalf of the 100,000 general practitioners outside of our medical schools, and for the larger social organization as well. There is strength in unity, but if unity is to be maintained and self respecting physicians are to cooperate with medical school promoters, it must be on the condition implied in the expression *"Each for all and all for each."* The medical practitioners of America and the people at large are not asking for sympathy. They are demanding their rights, both for themselves as individuals and for their communities, in keeping with the enlightenment of our twentieth century civilization.

We demand that the medical school become a laboratory for the evolution of a system of professional qualification that will adapt itself to the welfare of the entire profession and to the commonest needs of the people; that will promote a democracy of culture, concerning itself with the quest of new values and adjustments to life; that takes cognizance of the needs of the composite individual, as well as the gross abnormalities and disorders of his physical machinery; that turns out "Doctors" who will devote their lives to public service, carrying their influence not only to the different organs and structures with knife and drug, but to the composite individual as well—including not only his biochemistry, but his intelligence—thus adopting such measures that "treatment" will constitute cure for the present and prevention for the future.

It is time that the intelligence of the patient be regarded as the prime factor in the maintenance of health, and that this supreme factor when undeveloped be considered as the chief cause of disease.

RED AMORPHOUS PHOSPHORUS

BY I. L. NASCHER, M.D.
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There are several allotropic forms of phosphorus, the red amorphous phosphorus being in universal use. It is the principal ingredient in the composition forming the striking surface on the safety match boxes and is also used in the heads of some safety matches. This form of phosphorus is prepared by heating the ordinary phosphorus to 446° F. in a gas with which it will not enter into chemical combination.

As found in commerce it is a red brown powder, Sp. gr. 2.108, insoluble in water, alcohol, ether, chloroform, glycerin, benzene or bisulphide of carbon, and if fairly pure it is odorless and tasteless. When exposed to the air it slowly absorbs moisture and phosphoric acid is formed which gives a distinctly acid taste. It does not catch fire and will not burn at ordinary temperatures, but if heated to 500° F. it melts and will then burst into flame. Text books generally say it is not poisonous.

While experimenting with this substance in 1909 and 1910 I wrote to several of the largest chemical houses in the United States for information about it, and all referred me to the U. S. Dispensatory. Not one could give me any more information than I could obtain from the Dispensatory or an elementary chemistry; not one could suggest a solvent, or refer me to any literature dealing with its therapeutic value, except a footnote in the Dispensatory.

Although it is as safe to handle as talcum powder, one of the largest manufacturing pharmaceutical houses in the country refused to make up pills of amorphous phosphorus on account of the supposed danger; and while all reference works say it is not poisonous, druggists who receive prescriptions for one or two grain pills almost invariably call me up to verify the dose.

A pharmaceutical journal stated that the commercial product contained from 1 to 2 per cent. of yellow phosphorus, and I made inquiries among chemical houses as to the purity of their product. This question was generally evaded, only one house stating that repeated examination of their product showed that it was free from ordinary phosphorus and that it was "very pure."

I made a number of experiments to find a solvent. The only substance which appears to dissolve it is serum, but I am still uncertain whether it is a solution or a very fine suspension. The phosphorus is precipitated in a few days, but the serum remains tinged. It is apparently dissolved in the blood, for it is eliminated by the kidneys as amorphous phosphate of lime.

A cheap solvent would be valuable for technical purposes, but any solvent not deleterious to the organism would be useful for therapeutic application. Professor Dieckman, of the New York College of Pharmacy, suggested the tribromide of phosphorus as a solvent. This substance is, however, irritating, unstable and unsuitable for medicinal use.

The statement in books dealing with amorphous phosphorus, that it was not poisonous, led me to try it as a substitute for ordinary phosphorus in nervous exhaustion and as a cerebral stimulant. The footnote in the Dispensatory states that Dr. E. Q. Thornton had experimented with it. In doses of ⅜ grain given every two hours it produced toxic symptoms, headache, vertigo, priapism, etc.

I repeated this experiment, but did not obtain the same results, and am forced to conclude that in Dr. Thornton's experiments, which were made nearly twenty years ago, he used an impure product, one containing ordinary phosphorus. I then took the red phosphorus in doses of one grain, five grains, ten grains and finally fifteen grains. Ten grains produced a frontal headache, restlessness, excessive mental stimulation, ideas arising with such vividness as to appear as actual occurrences. There was a sense of weight or oppression in the stomach and priapism, the latter probably psychic, as I was looking for such a result. These symptoms passed away in a few hours. The next day I took fifteen grains and the symptoms returned with increased force. I recalled a picture of Custer's Massacre I had seen that morning and it appeared with all the vividness of reality. I could even hear the shrieks of the soldiers as they were being scalped, and could feel the blow of the tomahawk striking the head, as it appeared in the picture. (I once took an overdose of Cannabis Indica experimentally and had similar exaggerated sensory impressions.)

Thoughts followed each other so rapidly as to produce mental confusion. Physical restlessness was increased through the inability to concentrate attention. This continued for thirty-six hours, when I was obliged to take a hypnotic to secure sleep. The headache which appeared soon after I took the phosphorus disappeared in a few hours. There was no vomiting or jaundice, no abdominal pain or eructations or other of the typical symptoms of phosphorus poisoning and no after effects upon awakening.

I next tried the amorphous phosphorus upon a patient, aged 66 years. In doses of one grain three times a day, continued for one month, there was apparently no effect. I looked for mental stimulation and increased physical activity, but these did not appear marked in this case, nor in three other cases in which I tried it. I stated in a paper on Senile Debility* that in one grain doses it had no medicinal effect. After the discontinuance of the phosphorus in the first case, occasional attacks of vertigo occurred. Close questioning brought out the fact that there were mild attacks of vertigo for several months, but there was no attack during the time the drug was taken. As all four cases presented symptoms of cerebral atheroma, the administration of the drug was resumed and con-

*Medical Record, January 21, 1911.

tinued for one month. In all there was relief from the attacks of vertigo and in all urinary analysis showed a deposit of amorphous phosphate of lime.

Case No. 1, female, was 66 years old; case 2, female, was 75 years old; case 3, male, age 81, and case 4, male, age 72. Cases 1, 2 and 3 presented no marked symptoms of senile decrepitude. In cases 1, 2 and 4 there was chronic constipation, and in case 2 complete deafness; case 1 had periods of morbid depression, case 3 had enlarged prostate and incontinence of urine, case 4, a Civil War veteran, formerly a hard drinker, had the appearance of senile decrepitude. There was aortic regurgitation and obstruction, the beginning of cataract, occasional neuralgic pains in the stomach and intestines (abdominal arteriosclerosis); he complained of chronic rheumatism in the feet (arthrosclerosis), and was constantly whining about his disabilities, in order to obtain sympathy and attention. His mind was sometimes bright, at other times dull or confused.

In this case I gave the amorphous phosphorus in two grain doses three times a day, and here I had the most gratifying results. The symptoms of the cerebral and abdominal arteriosclerosis were relieved and the mind became brighter, the patient took a greater interest in life, and instead of sitting moping for hours at a time, he kept his mind occupied by reading, playing cards or doing little chores about the house.

During the last three years I have given the red amorphous phosphorus in doses of one or two grains three times a day in over a hundred senile cases, with benefit in almost every case. In one case the patient complained of eructations of gas, which smelled like matches, and pain in the bowels. This was evidently due to an impure product, as the drug which I found in the store where the prescription had been prepared had a distinct phosphorus odor and an intense acid taste. When amorphous phosphorus is subjected to atmospheric influences it develops acid properties which render it unfit for medicinal use.

In most cases the cerebral symptoms were lessened in severity or disappeared entirely while under treatment, but they returned in a few weeks or months after discontinuing the drug. In one case, in which it was used for two months, there was no return of the vertigo until eight months after cessation of treatment. In a few cases aphrodisiac effects were noticed and in some there was marked improvement in mentality and physical condition.

The rationale of the treatment is based upon Weil's experiments, which determined that the lime elimination is diminished in arteriosclerosis and that increased lime consumption does not increase the lime elimination. Increased lime retention increases the viscosity of the blood, making it more difficult to pass through the diminished lumen of the capillaries and vasa vasorum, and there is consequently diminished nutrition of the blood vessels and other tissues. This is one of the basic causes of senile degeneration; the higher tissues, like muscle and nerve tissue, being insufficiently nourished, the waste being repaired by a lower order of tissue, like the fibrous connective tissue, which requires less nutritive pabulum. The purpose of the treatment should be to diminish the viscosity of the blood and increase the lime elimination. The alkalies, especially the iodide of potassium, will diminish the viscosity of the blood, thereby allowing more thorough circulation through the organs and tissues. This explains the good results often obtained in arteriosclerosis from the use of the iodides. We do not know how the iodine element acts as an alterative, but it does not increase the lime output.

In small doses phosphorus combines with the lime of the food and increases the amount of lime in the system. When, however, more phosphorus is introduced than the system can take up, the excess is eliminated as phosphate of lime, the lime being withdrawn first from abnormal situations, then from situations in which it is in excess, and finally from situations in which it is present in normal amount. This is in accordance with the rule of forced elimination. The ordinary phosphorus is usually retained, as it can be given only in small doses. I do not know how much can be retained, but when phosphorus is given in the nontoxic form of red amorphous phosphorus in grain doses, an excess is eliminated as tribasic calcium phosphate. The lime excess is evidently withdrawn from the blood, thereby lessening its viscosity. The effect becomes evident in a few days, but the amorphous phosphate of lime is found in the urine in twenty-four hours. The question of the effect of this substance upon the kidneys was raised by an elderly Brooklyn physician who is using it. I must confess that I do not know. It is probable that this increased elimination of lime gives the kidneys more work to do, but urinalysis does not show casts or other evidence of increased degeneration of the kidneys.

The red phosphorus being insoluble, it must be prescribed in coated pill form. As it absorbs moisture, and phosphoric acid is produced, I generally prescribe it in capsules or pills. A gelatin coated pill would probably be the most stable form in which it can be kept.

NOTE.—Since the foregoing was written, I have succeeded in inducing Messrs. Sharp & Dohme to make and market a gelatin coated Amorphous Phosphorus Pill.

ANTISEPSIS IN GENERAL PRACTICE

By Douglas H. Stewart, M.D.
New York

No doubt every one will agree with the three following statements:

1st. The avenues in New York City run north and south.

2d. Thoroughly boiled water is always sterile.

3d. Antisepsis is necessarily more perfect in the operating room of a first class hospital than in the bed chamber of the average domicile.

Do not confound antisepsis with utility, and careful investigation will prove that none of the aforesaid statements are true—if unqualified.

1st. The avenues in our city do not trend north and south.

2d. Water boiled for one week in an open vessel proved not to be absolutely sterile.

3d. The furniture in an operating room will only be found sterile by a rare accident. It is clean, but not microscopically so. However, we conventionally admit that the expressions used are correct, and this admission leads us into absurdities, as might be anticipated.

Boil the subject of antisepsis down, and obtain the gist of the whole matter, then it will be found that all that can be accomplished is to keep the wound clean, and this implies that everything that comes in contact with that wound must also be clean. As for the room, furniture and materials, that do not touch the wound, it is simply impossible to maintain them in a surgically clean condition. One may do his very best, but his best is quite poor enough when the bacteriologist reviews the actual results and brings them to the bar of the test culture. Viewed from this standpoint, it is evident that men who know how to keep wounds, hands and instruments clean should not be surprised at good results, even though the operation was performed under such unfavorable surroundings as have often confronted military or industrial surgeons, when a chicken house or a barn was the best operating theater that good luck afforded.

Now it is important that all physicians know and have facility with some simple antiseptic toilette and technic. The one I suggest, after careful laboratory and clinical trial of some twenty-eight systems which were in use in various operating rooms, is the equal of any in simplicity and efficiency, and is the superior of any which embody soap and brush in their mechanical cleansing processes. There is but one excuse for the use of green soap, and that is the addition to it of powdered pumice stone. There is no excuse for the damage which the brush causes. Any one may readily convince himself that the usual mechanical cleansing of many hospital operating rooms is a means of rendering the antiseptic toilette less efficient. Therefore, one great necessity for rubber gloves originates when the hand is scrubbed. Let bacteriological tests be made, and some of our very best surgeons will find that at no time during an operation is the well scrubbed hand sterile. Or if sterile at one time, it is not sterile throughout the whole time.

Much is said about iodine as a disinfectant, but if the other great halogen is mentioned, the hearer says (usually): "Oh, yes; chlorine is good, but it is such an irritant." The inference being that iodine is less irritant, and this in spite of the fact that in answer to the question, "What is the best known counterirritant?" the selfsame speaker will reply at once, "Iodine"; then he often swallows a few times and says, "Cantharides." It is all very amusing. Iodine is reliable up to 1-4000 and chlorine up to 1-6000. In irritation there is small choice; that is, after all, a question of duration of contact, for a 10 per cent. solution with a one minute contact may not be so damaging as a 5 per cent. solution with a half hour contact. Personally I found a drop of pure carbolic acid sometimes did not do as much harm in forty eight hours as a saturated solution of that drop, both being well covered by a bandage.

If one is to handle pus, let him invariably use rubber gloves; this is the first and great commandment. Do not allow pus on your hands. Then avoid soap, brush and plain water. Boil the water ten minutes and put washing soda in it—otherwise, why boil? The soda tears the cell wall to pieces and the boiling is efficient. Put such water in a well baked basin. Take a handful of granulated sugar in each hand and use that as a substitute for clumsy mechanical cleansing and its innumerable traumatisms. Then, using the same water, use chlorinated lime in the same manner. Wash off in the same basin.

With a very little practice expertness comes, and your hands will be in rather better condition than those of the average surgeon in the average operating room. If you are interested in Bacteriology, or have some acquaintance who is, it will be very little trouble for you to prove to any surgeon who is a soap user that this technic is better than his; and that you will often obtain complete sterility when he is satisfied if he does not obtain pathogenic germs and pays no attention to the yeasts and nonpathogenic ones that may be present.

As to portability, while this may be a factor in most antiseptic toilettes, soda, sugar and chlorinated lime are so readily obtained at the nearest grocery that it is hardly worth while to carry them. Iodine tincture or any liquid is hardly to be commended for satchel purposes. For wound protection, disinfect the patient's skin as you do your own.

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EDITORIALS

YESTERDAY AND TO-MORROW

Another year in the Calendar of Time approaches a close. Another period when we are wont to indulge in retrospection and introspection; to inventory and classify events of the past twelve months. Some one has said that there are two days in every week of one's life which should never be thought of: Yesterday and to-morrow. Yesterday, because it is past and therefore not to be changed. As it is, it must stand forever a matter of record. That good or bad, there can be no erasures, no credits written in order to force a favorable balance. That the cross word, look or other lapses are never to be recalled. To-morrow we are assured will be another day in which we are to unexpectedly encounter sunshine or lowering skies, to venture into the totally unknown. We cannot accept such a dictum; to do so would be to make all men miserable. We must accept yesterday as but one of many days of life's experiences: surely each day brings its lessons from which we can profit or otherwise for how else could we grow, expand and progress: learn. We can recall and measurably blot out of our lives those cross words, tears. neglect. We can undo those things done which we should not have done. One of the greatest gifts given us for good is to repent, the most beneficient of the many inestimable gifts is forgiveness. Our mistakes need not be repeated, and thus can we grow from day to day into more perfect men and women. We believe to-morrow should be seriously contemplated, for no great achievement was ever accomplished without giving thought to to-morrow. Without the experiences of many yesterdays we cannot hope to keep pace with the progressive world.

Our moments of introspection, retrospection should encompass the yesterdays, and through these studies of self will we equip ourselves for to-morrow, and these thoughts of self and ours should embrace the yesterday of not only our own lives, but that of those who have gone before us. This is an appropriate season for contemplation, our thoughts should be all inclusive, for for all of us our yesterdays will include the year now rapidly passing to make a life. To most of us the years pass happily or otherwise as we ourselves determine. To morrow will soon become eternity. How much the yesterdays will then count for us no one can determine; we may be sure, however, that they can be beacons to guide the beloved ones left behind and figure not only in their yesterdays, but let us hope more in their to-morrows.

EUGENICS AND CIVILIZATION

Civilization with all of its many and manifold advantages has brought in its train numerous evils. One of the main drawbacks of civilization, and especially in industrial countries, is the massing of the population into limited areas. The population of cities and towns of all civilized lands has increased by leaps and bounds while civilized peoples have become or are fast becoming an urban race, and the country is being denuded of inhabitants. Great Britain is the most notable example of this state of affairs, for the reason that she has been engaged in industry for the longest period; but other countries are approaching a similar condition.

Industrial life in crowded centers of population is not conducive to good, or perhaps it might be more correct to state not calculated to serve the interests of a nation, as it is opposed to the rearing of a healthy, vigorous and sturdy race. Average life may be as long, but it is believed that the race as a whole deteriorates.

There appeared in the November issue of the AMERICAN PRACTITIONER a paper on eugenics by Sir James Barr, the well known British physician. As is his wont, he handles the subject without gloves, but the inherent truth contained in his arguments cannot be gainsaid. The paper in question is mainly concerned with the problem of race degeneration as it presents itself in England, but many of the conditions are the same in this and in other countries. Sir James does not regard the matter from the sentimentally humanitarian aspect, which appears to be such a feature of the propaganda of philanthropists, and of the schemes of political vote catching lawmakers of the present day, but rather considers the situation from the far broader outlook of the good of the race and the nation. Thus he pertinently points out that it is no longer a question of the survival of the fittest. Nature is not now permitted to pursue her own selective proccss and to weed out the unfit. On the contrary, every effort is put forth to save and prolong life, however much such salvation and such prolongation may seem to be inimical to general and national well being. Were the healthy, vigorous and sane portion of the population to propagate their kind at the same rate as the less capable and worthy portion, matters would not look so ominous. The balance to some extent would be held. Unfortunately the worst part of the population viewed from the standpoints of mentality, morality, and physique breed so much more rapidly than the former class, that fears have been expressed recently by thinkers who are by no means alarmists, that those upon whom the safety and prosperity of the nation hangs will be swamped by the hordes of unfit who are born and grow up in our so called mighty cities. Sir James makes the telling point thus: "The degenerates not only survive but they are more prolific than the intellectual, they are not hampered by any economic laws, and they rapidly produce another generation more degenerate than themselves. Nature's methods of adapting the individual to the environment, which is the surest sign of progress, has been reversed, and we now adapt the environment to the individual. The diseases which formerly killed off the weaklings have been more or less successfully combated, and those who have heretofore failed to survive, now live to produce a generation even more degenerate than themselves."

In this country the problem of the feeble minded and ill balanced is one that is staring our scientists and legislators in the face and is to, say the least, menacing. Many of our most prominent students of sociology recognize this as a sinister fact. Dr. Barker, of Johns

Hopkins University Medical School, has headed a campaign with the noble object of stemming the wave of degeneracy which is rushing with ever increasing impetus over our broad country. Eugenics wisely and practically directed should do much in this direction, and the paper of Sir James Barr is commended to the consideration of all those on this side of the water who have at heart the best interests of humanity at large.

THE NOBEL PRIZE WINNER

Charles Richet was the first to observe and describe the phenomenon of anaphylaxis. Only a few years have passed since he drew attention to his discovery, yet in those few years a vast amount of work has been done in many laboratories and the list of treatises and papers dealing with the subject in its several aspects is already appalling.

In the course of some physiological experiments Professor Richet noticed that dogs under certain conditions became extraordinarily susceptible to the action of foreign proteins. He had been making some researches with extracts of a species of zoophytes and observed that after the dogs had received one injection of such extracts they were very apt to die suddenly on receiving a second, even if the second was far below the fatal dose for dogs which had not been sensitized. Similar observations were made by other investigators, and thus it was shown that animals which had received injections of horse serum or milk became hypersensitive, and attention was drawn to the unfortunate accidents that occasionally followed upon second injections of antidiphtheritic serum, as well as other serums. Similar results were observed with bacterial proteins, and it was suggested that the manifest susceptibility of some persons to shellfish, etc., might otherwise be an anaphylactic phenomenon.

The practical bearing of these observations on the use of serumtherapy is obvious, to say nothing of their relation to the whole theory of immunity. At first sight anaphylactic reaction seemed to contradict all former beliefs with regard to acquired resistance, and it may be recalled that the discovery was hailed with great glee by the antivivisectionists. Their views on the subject may safely be ignored; but the discovery has led to so much research that is sure to be fruitful that no one can doubt the right of Charles Richet to his reward of the Nobel Prize.

PSYCHOLOGY AND DRUG POISONINGS

The frequency of poisonings with corrosive sublimate suggests as similar experiences before have done, the prevalence of some subtle influence of mind which causes one accident or crime to be followed by others of the same type. That there is often such suggestion of crimes is not to be doubted, but that the same rule should govern accidents seems remarkable.

It might have been supposed that the first of these bichloride poisoning cases would have reminded people of the dangerous character of that drug and would have moved them to take special precautions in its use. Instead, however, there seems to have been an actual increase of carelessness. The poison has been kept side by side with domestic remedies, while people have the habit of taking medicines in the dark.

How such perversity is to be overcome is a puzzling problem. Some have tried putting all poisons in bottles of peculiar color or shape, or with other precautions, only to have them transferred to other bottles like those in which harmless drugs are kept. It has been suggested that bichloride tablets should be made in some special shape, in which case some people would probably trim them into the shape of innocuous troches.

UNIVERSAL SEX HYGIENE

There is much, too much we think, written and talked about on sex hygiene; too much of nonsense by the would be scientist, advice not only useless, but positively harmful. That universal sex hygiene should be practised by all adults no one will deny, but advice should be given by those who are qualified by training to speak. Measures are being advocated which will not prevent infection, and thus a false sense of security may really end in disaster, either through lack of real germicidal agents or in starting an inflammatory process which may result in positive harm.

The prophylactic to be serviceable should be used at once after coitus by both sexes, whether man and wife or otherwise. There are a number of reliable agents, creolin, cresol or lysol that can be safely used for douches for women; thymol, tricresol or some one of the silver salts for injection by men and a calomel ointment 30 per cent., with white vaseline base for external application to destroy the spirochete are measures whose employment has proven prophylactic. Bichloride of mercury should never be used in these cases except under specific instructions from the physician. In fact bichloride of mercury or corrosive sublimate should never be kept in the home for any purpose.

This subject should be discussed in a sensible way, stress being laid on the routine use of some article for not only preventative but esthetic reasons. There can be no more objection to sexual prophylaxis than to oral hygiene, in fact we believe that the douche is more needful to the well being of the wife and protection of the husband than is the tooth brush. As above stated, we believe that universal sex prophylaxis or hygiene would do much to do away with the venereal peril.

THE DECLINING BIRTH RATE OF THE WORLD

The question whether the human race, or at any rate the white part of it, is dying out is seriously raised by European statisticians. Some years ago Germany sneered at France as producing "more coffins than cradles," and, indeed, the birth rate in France was and is ominously low, while the ratio between the birth rate and the death rate is discouraging. But Europe generally is in the same plight, in kind, if not in degree. Nearly every important country shows a steadily declining birth rate.

That is true of France, Germany, Great Britain, Spain, Austria-Hungary, Italy and Belgium. In every one of these countries the highest birth rate on record was before 1885, while in most of them the lowest rates have been since 1905. Thus the maximum and minimum were, in England, 33.9 in 1881 and 25.1 in 1910; in Germany, 37.2 in 1884 and 32.1 in 1908; in France, 24.9 in 1881 and 19.6 in 1909, and in Italy, 39 in 1884 and 31.5 in 1907. Nor are these things true of only the "old" countries of Europe. They are true also of the United States, of Australia and of New Zealand, young and vital as they are supposed to be.

The gloom which these facts might cause is, however, somewhat dispelled by a comparison between the birth and death rate. Generally speaking, the latter is declining even more markedly than the former. The natural rate of increase of population is therefore rising, not in all lands, but in most of them, including some in which the birth rate is markedly decreasing. Thus, in Germany between 1881-85 and 1901-05 the birth rate fell from 37 to 34.3, but the death rate also fell from 25.3 to 19.9, so that the natural increase rose from 11.7 to 14.4. We may, therefore, hope that the extinction of the Caucasian race through decline of vitality and lack of propagation is still in the immeasurably distant future.

THE ANALYTIC IDEA

One way of making caviare acceptable to the general is to express the magnificent in terms of the commonplace. If there is no wonder for us in the sea, no beauty in the earth, we are helped to amaze by being told that they are composed respectively of "little drops of water, little grains of sand." "What a piece of work is a man!" and he has been reduced to his essentials. A German (*Medical Press and Circular,* September 17, 1913) has worked it out. A 150 pound human being is worth $7.50. That is in terms of his constituent elements. "His fat is worth $2.50; of the iron there is hardly enough to make a nail an inch long. There is sufficient lime to whitewash a pretty good sized chicken house. The phosphorus would be sufficient to put heads on 2,200 matches, and there is enough magnesium to make a pretty firework. The average human body contains enough albumin for 100 eggs. There are possibly a teaspoonful of sugar and a pinch of salt." At first sight we seem to have found a useful outlet for our surplus population. To turn the unemployable into whitewash and get the unemployed to apply it to our chicken houses sounds simple, but it is not. For the elements are so mixed in us that, when Nature sets them up and says this is a man, it would cost more than our $7.50 to turn our substance to any baser uses. It is bad luck that when we have done with our bodies we cannot hand them over to the hardware dealer, but it is our fate. Dust we are, and we remain the quintessence of dust.

DIGEST OF CURRENT MEDICAL LITERATURE

The Etiology of Arteriosclerosis.—*Herz Medizinische Klinik*, August 24, 1913, states that the main point which he emphasizes is the importance of grief and worry in the origin of arteriosclerosis and the necessity for the physician's being a true friend of the family and adviser in order to better conditions in this respect. Far too little attention is paid as a rule to the nervous or psychic factors contributing to arteriosclerosis. Physicians are liable to scoff at the idea that one can die of a broken heart, but humanity at large and many general practitioners know that this does occur. Herz has recently had a case of this kind in his practice: A woman whom he knew to be perfectly healthy was actually consumed by grief and died of coronary sclerosis when her daughter went wrong. Women die from grief; men from worry over business. The effect of emotions on the vascular system is most serious when the vessels involved are connected with the brain, heart or kidneys. The physician who does not apply psychotherapy in treatment of arteriosclerosis neglects one of the most effectual means at his command. With cerebral-neurasthenic arteriosclerosis, iodin is the main reliance; with coronary trouble, theobromin and nitrites; but all these are of little if any use when the arteriosclerosis affects the cardiorenal vessels. Dieting is the reliance here.

Herz adds that even if alcohol and tobacco may be factors in the vascular trouble, yet any benefit from dropping them entirely is far outbalanced by the patient's longing for his accustomed stimulant. Everything should be done to make the patient placid, comfortable and cheery. An alcohol rub in the morning before rising is an important aid. If he dreads balneotherapy, do not insist on it or on anything that will annoy or distress him. Herz declares in conclusion that prophylaxis of arteriosclerosis should begin in childhood. Children are generally driven as being naturally lazy and ambitionless, but he insists that this is a mistake. Most people, even children, try to do too much; they work and worry too much. Children should be trained to recognize that they owe a duty to themselves, to seek fun as a recompense for fulfilling their ordinary duties. Joy does not come to us as sorrow does; we have to seek for it, and few understand this. We physicians, for example, are far too much slaves to duty, we overwork and ruin ourselves.

Contagious Disease Hospitals.—D. L. Richardson, Providence, R. I. (*Journal A. M. A.*, November 22), says much evidence against the airborne transmission of contagious diseases has been gathered in the last few years, and the practical experience in hospitals in England and France has done much to destroy the belief in it. The French were the first to question the importance of airborne disease and to emphasize the importance of contact infection. Various methods of construction have been devised for separating various diseases, aseptic nursing being employed wherever the type of separation. In England the barrier system is largely used. The various contagious cases were separated from others and from each other at first by sheets saturated with bichlorid of mercury. These have since been dispensed with and the bed marked by tape lines surrounding it or otherwise to show the nurse that precautions are necessary. Another method is the socalled cubicle system. The cubicles are small rooms with more or less complete partitions, all being ventilated above in common. The cellular block system consists of rooms back to back with glass partitions, access being through verandas. He quotes the statistics of certain English hospitals showing the success with these methods and also gives in detail the success of the Providence City Hospital for three years past, describing fully the arrangements made and the rules employed, all based on the contact infection idea. He believes that the Providence City Hospital is the only one in this country which keeps an accurate record of all diseases contracted in the hospital by patients and help and publishes it in the annual report. So far as he knows no other hospital, except the Pasteur Hospital in Paris, has ever undertaken to care for such a variety of diseases by aseptic nursing. The method used seems to be a modified cubicle method, each patient being able to see across to his opposite neighbor through large windows. The percentage of secondary infection is small, and he thinks has been caused by faulty technic. They have had intervals of as much as fifteen months without a case occurring.

Buttermilk.—Two practical methods of preparing buttermilk are described by S. Oftedal, Climax, Minn. (*Journal A. M. A.*, November 22). In the first, which is available to any one living near a creamery, the dairyman's culture is obtained in a sealed and sterilized bottle or jar and kept in a cool place. A teaspoonful of this is added to a pint of whole or skimmed milk just after it has been raised to boiling temperature and cooled down to room heat without raising the cover. Then it is allowed to stand for eight hours at the same temperature, after which it is cooled down and kept ready for use. The second method requires more care and is best carried out by the physician or trained nurse. Oftedal describes it as follows:

"Whole milk is cooled down to about 50° F. immediately after milking by the vessel being immersed in icewater. It is then pasteurized at 180° F. for thirty minutes. After cooling down to 80° F. implantation is carried out by the use of the tablets of B. lactis bulgaricus, Type A (Grigoroff) in the proportion of six tablets to a half pint of milk. It is kept at this temperature for eight hours, or until the milk is coagulated. If used before coagulation has taken place it will have a bitter, disagreeable taste. After coagulation, however, it assumes a very agreeable odor and taste. The culture, after being thus prepared, may be further propagated, according to the first method, by simple transplantation every twenty four hours, and an indefinite amount of buttermilk be thus prepared. A culture may be safely carried along for two weeks, when fresh culture should be prepared."

The Present Status of the Treatment of Pulmonary Hemorrhage.—Dr. Victor G. Vaughan, Jr., of Detroit, reports (Association of American Physicians, Washington, May 6-8, 1913): In addition to the general measures employed in all cases of internal hemorrhage many drugs have been advocated as possessing a specific effect in the control of pulmonary hemorrhage. In the majority of cases the bleeding will subside in the course of a few days under absolute rest, control of cough by opiates, application of ice to the chest wall and the use of calcium chloride. Among drugs two classes may be of use: (1) Those which lower the pressure in the pulmonary circuit and (2) those which increase the coagulability of the blood. The author has seen benefit from the nitrites only in one instance following profuse repeated hemorrhages and where a marked depression of the respiratory movements followed the administration of the drug. Good results have been obtained following the use of pituitary extract which in animals has been shown to lower the pressure in the pulmonary while maintaining that of the systemic circulation. The therapeutic procedure of the greatest value in checking constantly recurring hemorrhage with no tendency to clot formation has been the employment of fresh rabbit or horse serum.

Gonorrhea from a Pathological Standpoint.—We find in the *New York Medical Journal,* June 14, 1913, an excellent article upon the above subject from Dr. George A. Wyeth of the New York Polyclinic Medical School and Hospital staff.

The following are Dr. Wyeth's conclusions:

1. Gonorrhea, on account of its complications and sequelae, must be recognized as a most serious infectious disease.

2. Gonorrhea can be cured if the seat of infection be definitely located and scientifically treated.

3. Gonorrhea can be aborted in a large proportion of cases if patients are seen early.

4. In the acute state phagocytosis is the chief means of combating the infection.

5. It should, therefore, be our endeavor to promote a local leucocytosis by increasing the discharge.

6. Time honored astringent injections which aim to check the discharge are to be condemned so long as gonococci are present.

7. Only by the systematic use of the microscope can we intelligently direct our course of treatment.

Local Application of Tincture of Iodine to Eradicate the Diphtheria Bacilli.—Strauch in the *Therapie der Gegenwart,* September, 1913, applies as a routine measure tincture of iodine to paint the tonsils when diphtheria bacilli are found in the throat a week after the close of an attack of diphtheria. In sixteen out of fifty cases after one or two applications of the iodine on a cotton pledget no further bacilli could be detected; in twenty others none could be found after three applications; in two cases four applications were necessary, and in four other cases, including three with diphtheria of both nose and throat, the bacilli could still be cultivated from the tonsils. He commends this systematic iodine treatment as a useful means to control the further spread of the infection, even though it is not invariably successful. The most striking results were observed in cases in which chronic bacilli carriers were freed from the bacilli in a few days under the iodine. No harm or byeffects were ever noticed, except the disagreeable but transient taste of the iodine in the mouth.

Trifacial Neuralgia.—N. T. Shields, New York (*Journal A. M. A.,* November 22), says that the really painful tic douloureux usually occurs about middle life or later and is generally caused by lesions or lesion within the teeth. In simple cases a careful study will clearly indicate the teeth or tooth causing neuralgia and the proper treatment to apply for its relief. The tooth lesion may be secondary to some general constitutional condition affecting its nutrition, but he does not specify this point particularly in his remarks on the treatment of the teeth themselves, which, he says, has caused in his hands a permanent cure. Maxillary sinus complications are generally caused by the teeth, and occasionally those of the frontal sinus itself. A sinus involvement, he says, should always be cured through a tooth socket.

The Treatment of Burns.—In Lotheisen's clinic in Vienna the toxic factor is regarded as the most important one to combat when dealing with severe burns. The routine practice is to swab the burnt surface gently with benzine, and then to powder it thickly with novoiodine powder and to cover it with gauze. No attempt to render the skin absolutely aseptic is made; morphia and anesthetics are avoided, as tending to promote or increase shock. When pain is very severe, anesthesin powder is also used; this is both antiseptic and analgesic. The old dressing is removed in a bath when necessary, and the process repeated. Blisters are snipped before the novoiodine is applied. Cardiac stimulants are given freely, and a great point in the treatment is copious saline infusion, which is stated to have given admirable results. All wet dressings, ointments, and sedative drugs are religiously avoided.

High Bloodpressure.—Osler (*British Medical Journal*) says the first thing is to determine the nature of the case, whether simple hypertension, arteriosclerosis, or chronic nephritis, or all combined. In the case of the active, driving business man, who has unconsciously damaged the machine, let him reduce the speed from the twenty four knots of a *Lusitania* to the ten knots of the ocean tramp. It is interesting to note that the worry and apprehension associated with the first shock of the discovery that something is wrong may cause loss of weight, and with it reduction in the bloodpressure. A man of sixty two, whose first indication of trouble was an attack of transient aphasia, lost two stone in weight in a year, and his bloodpressure sank from 220 to 150. He has been better since he has taken a philosophical view of the situation, and his bloodpressure has risen to 180.

The second thing is to lessen the intake. We all eat too much, and in no age was the saying more true that "the platter kills more than the sword." Time and again, Osler asserts, he has been impressed with this as a possible factor in obscure forms of hypertension and arteriosclerosis in persons otherwise temperate Largely a matter of habit, the amount of food taken should be enough to keep the engines going at a steady speed. A diet of low protein content is best, and fairly large quantities of liquid should be taken.

Thirdly, elimination should be promoted in every way by making the action of the kidneys, bowels, and skin thoroughly efficient.

Fourthly, of drugs none are entirely satisfactory in chronic hypertension. Nitrites in various forms may be used, and are often of temporary benefit, but Osler thinks the general opinion now is that neither the nitrites nor potassium iodide are of permanent benefit; though now and again one meets with an instance in which the prolonged use of potassium iodide is followed by marked lowering of the pressure. A preparation of mistletoe has also been much lauded, but it, too, is very variable in its effects. Be careful on this point—if the patient does not feel so well, and begins to get thin and look badly, stop all drugs, trust to general measures, and let the pressure rise. In the robust man of full habit in the hypertensive crises with headaches, dyspnea, or angina, a free venesection is indicated, to be followed by mercurial and saline purges.

The Healing Process of Osteosarcoma Under the Influence of the Roentgen Rays.—Pfahler (*The Journal of the American Medical Association,* August 23, 1913), says that osteosarcoma heals by a progressive deposit of lime salts in the tumor areas until these areas attain the soldity and density of normal bone. This process usually begins within a month and is progressive for a year or more, continuing long after the roentgenotheraphy has been discontinued. In twelve cases treated, including the inoperable and recurrent, seven, or over 58 per cent., have completely recovered and remained well from 5 to 11 years. In only one case was there no improvement. Treatment should be given in any inoperable case. Where operation will result in deformity or serious loss of bone, roentgenotherapy should be tried for at least a month.

Radium in Internal Medicine.—Rowntree and Baetjer review the literature on radium and its usages in the *Journal American Medical Association,* October 18, 1913. The uric acid output seems to be increased by its use and its use in gout is unmistakably beneficial. Taken internally it is excreted rapidly by the lungs. It is given as emanation, in the form of baths, subcutaneous injections, local applications, as compresses, internally as a drink, and as inhalation. Results in arthritis deformans, muscular rheumatism, gout, neuralgia, neuritis, lumbago and tabes have been so far encouraging as to warrant further extensive trial.

In the Treatment of Malignant Tumors.—O. Schindler (*Weiner Klinische Wochenschrift,* September 11, 1913, declares that radium may be used in all cases of operable or inoperable epithelioma of the skin preceding operation. If desired results are not otherwise obtained operation may be resorted to. The end results of radium therapy in these cases as compared with surgical treatment are at least of equal value as regards permanence of cure and freedom from symptoms—in regard to functional and cosmetic results, radium results far exceed surgical results.

Cirrhosis of the Liver.—Grover (*The Journal of the American Medical Association*, August 16, 1913) believes he has produced a typical alcoholic cirrhosis of the liver in rabbits by the daily giving of 15 c.c. of 34 per cent. alcohol before feeding time each morning. Histologically these livers coincide with the human type of this disease.

Eyeglasses for Poor Children.—It is stated that Dr. B. L. Becker, of New York, has offered, through the Board of Education, to provide 3,000 pairs of eyeglasses to school children with defective eyesight if such children were sent to his office with the proper order from principals, teachers or visiting nurses. Dr. Becker's generosity is in part explained by the fact that he himself has risen from a poor East Side boy to a position of distinction. It is evident that the problem of defective eyesight among poor children is not met by a mere determination of the defect, and the remedy being a matter of considerable expense has naturally been difficult to provide.

The Number and Cost of Treating the Sick in the United States.—There are in the United States 6,665 institutions of record for the care of the sick, with a total capacity of more than 600,000 beds. By a modest estimate, these huge figures represent a money investment in land, buildings, and equipment of not less than $1,500,000,000, and an annual outlay for maintenance approaching $250,000,000. On the human side, there are more than 100,000 trustees of hospitals, and more than 65,999 physicians on hospital medical staffs. About 10,000,000 men and women contribute annually to hospital funds, and approximately 9,000,000 men, women, and children are patients in the hospitals in the course of each year.

Eugenic Marriages.—New Jersey, following the lead of several of the Western States, has passed a law requiring prospective brides and bridegrooms to produce a medical certificate of freedom from transmissible disease before a marriage license is issued. One objection that has been raised against such a law is that it would induce unscrupulous physicians to issue false certificates of health. While this is doubtless true, it will to a considerable extent minimize the evils resulting from hasty or ill advised marriages.

SOCIETY REPORTS

REPORT OF SPECIAL CLINIC AT THE NEW YORK POLYCLINIC HOSPITAL

Sir W. Arbuthnot Lane, Bart., F.R.C.S., and Herbert Patterson, Esq., F.R.C.S., respectively surgeons to Guy's Hospital and the Temperance Hospital, London, were present on Friday, November 25, by invitation of Dr. William Seaman Bainbridge, A.M., Sc.D., M.D., Professor of Surgery, at the institution, at a clinic held at the Polyclinic Medical School and Hospital, 341 West Fiftieth Street, New York City. The clinic began at nine in the morning and continued with a brief intermission for luncheon up to half past five. During this time Sir Arbuthnot Lane, Mr. Patterson, and Dr. Bainbridge demonstrated their skill as operators. The operating theater was closely packed by surgeons from all parts of America, who naturally followed with keen attention the work of the two distinguished English surgeons. But before noticing the operations performed, it may not be out of place and should interest our readers to give a short description of the career of Sir Arbuthnot Lane. He holds a unique position among British surgeons and indeed among the surgeons of the world, in that he is an original thinker and has carried his views into practice in the face of opposition and prejudice. Sir Arbuthnot Lane is one of those rare members of the human race a pioneer in surgery, and what is more, a pioneer in British surgery. As is well known, the British medical and surgical professions are conservative, some say too greatly enmeshed in the folds of tradition. A pioneer surgeon, therefore, in that country is eyed askance, and not infrequently dubbed a charlatan and advertiser, especially if he atempts to force his views on the profession, before the members thereof have had ample time to deliberate and ponder thereon. Lane, however, possessed, as all men of his type possess, the courage of his convictions, and proceeded to demonstrate the wisdom and practicality of his opinions without much regard to the opinions of his confrères. Consequently, for some time, to use an English expression, "he had a hard road to travel," and although he has now come into his own, he is still regarded with a certain degree of distrust by a considerable section of the British profession, that is to say, the validity of some of his views are distrusted. Curious to relate, although the matter is not curious when duly weighed, the American medical profession embraced some of Lane's views, or at any rate, received them with an open mind when the majority of the British either denounced them or were flatly sceptical. For instance, his ideas on intestinal stasis and its profoundly injurious effect on the human system and his radical means for controlling and curing this condition, were listened to with attention and respect by American surgeons before their British brothers would hear them mentioned with toleration. Of the disciples of Lane in this country, Dr. Bainbridge has been the most enthusiastic, the American Huxley to the Darwin of Lane so far as his views on intestinal stasis are concerned. He was the first to perform a colectomy for stasis in this country, and has short circuited the colon on numerous occasions, and during a period of some years. It was therefore eminently fitting that the clinic held on November 28, at the Polyclinic Hospital, should have been arranged by Dr. Bainbridge, and that through his instrumentality the large concourse of leading surgeons drawn from all parts of this country should have been given the opportunity of not only witnessing Sir Arbuthnot Lane's surgical skill, but should have been afforded the chance of judging, to some extent, for themselves of the justice of his claims, and of meeting the man and hearing him argue his own cause. Of course, it would be absurd to think that conviction would be borne in on all present, but it certainly may be stated that if any came to scoff they went away impressed and had to confess that there was more in the theory than they had ever before dreamed there was.

For example, while the audience, if it may be thus termed, were waiting for the operative demonstrations, Dr. Bainbridge showed a case of a man on whom he had performed colectomy for the relief of intestinal stasis and its deplorable consequences five years ago, who had to all seeming been cured. Before the operation, according to his own account, the man was a physical wreck, while now he looks a hale and hearty man. He has not lost a day's work during the past five years, can eat anything, and is not troubled with constipation.

Dr Bainbridge exhibited cases upon which he had operated and which may be classed as typical of the malady under a descending scale of seventy. First type The extreme case when the removal of the colon is necessary. Second type. Less severe, when short circuiting is indicated. Third type. Adherent bands, cut and sutured, followed by the use of a supporting belt, and the administration of petroleum. Fourth type. Misplaced appendix, hanging up the terminal curved ileal loop. Fifth type. Exercise, diet, Russian mineral oil and belt. All these cases were operated upon or treated by Dr. Bainbridge with complete success. In every instance the subject looked well, and one and all declared that they enjoyed excellent health. One woman of the second type, indeed, was so reduced and ill before operation that she or her relations had ordered a plot in the burying ground, anticipating that it would be required in a very short time. In her case the operation has had almost magical results. In two years since operation she has gained weight, eats heartily, is able to work, no constipation and, in fact, appears quite normal. A remarkable instance of too long neglected intestinal stasis was operated upon by Sir Arbuthnot Lane Arteries, heart, kidneys, all diseased. Sir Arbuthnot Lane, before operating, said that the patient had reached the stage when operative measures afforded the sole chance of saving life. The operation was successfully done, and up to the time of writing the patient was doing well.

The first operation performed by Lane was one of cleft palate and hare lip on an infant ten days old. Lane was the first surgeon to operate for this combined condition at one sitting on children under three years of age. His next operation was that known as short circuiting, one of the most radical innovations ever introduced into surgery and the one upon which attention has been focussed and about which discussion has raged since its introduction. This case, which has been referred to already, was an ideal one for operation, because it was an extreme example of the ileal kink, with the obstruction and consequent physical and mental ills produced by the supervening autointoxication. Lane explained that in a case of this description it was of no permanent good to divide the kinks and adherent bands, and that the only course to be pursued was to "short circuit" The third opera tion done by Lane was that for the performance of which his name was first brought into great prominence, plating for fracture. It would be superfluous to describe an operation which is already so well known to American surgeons both by means of literature and by practical demonstration, for Lane has exemplified this method for treating fractures on several occasions in this country. Suffice it to say, that although it has not been largely taken up by surgeons, it now appears to be gaining ground. Those who were fortunate enough to be present at the Polyclinic on November 28 were afforded the gratification of seeing with their own eyes Lane perform his three original operations. Moreover, these operations do not exhaust the list of new procedures which have been introduced by Lane. He was the first to inject into a vein of a human subject physiological saline solution, and for this glaring innovating procedure was most severely hauled over the coals, even by some of the most eminent physiologists of the day. Again, in this instance time has shown that he was right and that his critics were wrong.

He was the first surgeon to remove a rib for the relief of emphysema. First to shut off by tying the internal jugular vein for thrombosis. One of the first in the world to do a radical mastoid operation. Surely no man living has done more to advance surgery. It is a question if any one has done so much. As said before, he has been compelled to fight every inch of his way, yet his views in the main are now accepted. Even his latest and most revolutionary views, those on intestinal stasis, and his methods of treatment are daily gaining ground. If right again, or if partly right, Lane in his latest departure from the field of tradition in surgery, has brought in a new era in surgery and medicine. It would seem that a brighter day is dawning for a host of human derelicts.

Among the eminent suregons who have become converted to Lane's views, or converted to his main principles, are Bainbridge, of New York; Chapple, of London; Harold Stiles, of Edinburgh, Scotland; Rutherford Morrison, Newcastle on Tyne, England; Herbert Patterson, London; and Jerome K. Lynch.

The chief feature of Lane's operating which strikes the trained observer is not the rapidity, although he is rapid, but the absolute sureness and exactitude. He never hesitates but goes along like inexorable fate, and one somehow feels that he never makes a mistake. His bone work is the highest expression of surgical art. Mr. Patterson, known especially for his gastric surgery, performed an exploratory laparotomy, the diagnosis being appendicitis, high placed stomach, ulcers of duodenum or stomach. Mr. Patterson used his own needles and some new instruments of his devising. His admirable arm restraining apparatus, devised also by himself, excited great interest. By using this apparatus the difficulties met with in keeping the arms in such a position that they do not embarrass the operator are skilfully avoided.

Dr. Bainbridge operated upon a particularly bad case, in which the ileum was adherent, and there were numerous adhesions. He had operated upon the same patient before, but owing to the refusal of relations to allow a radical operation, had simply divided the adherent bands with the consequence that the sufferer, after a few weeks of benefit, continued to go from bad to worse. On this occasion Dr. Bainbridge did a short circuit and expressed the opinion that the result would be lasting. Some of Sir Arbuthnot

Lane's former patients were presented as evidence of the permanent benefits accruing from his operations. One of these was a young woman who after suffering from severe intestinal trouble for a considerable time, a year ago went to England and was "short circuited" by Lane and has been in excellent health since.

Among those present at the clinic were Dr. John A. Wyeth, ex president of the New York Academy of Medicine and founder of the New York Polyclinic Medical School and Hospital, who originated post graduate medical work in America, ex-president of the American Medical Association; Professor Kronig and Dr. C. J. Gauss, of Freiburg, Germany; many of the faculty of the Polyclinic; Dr. H. L. Lotz, of Australia; W. F. Campbell, president of the New York State Medical Society; Dr. Bogart, of Brooklyn; Dr. Huppe, of Wheeling; Dr. H. H. Leigh, of California; Dr. Wormelle, of Boston; Dr. Decatur, of Bridgeport; Professor Stewart, of Bellevue Hospital and Medical School, New York; many from New York and from all parts of the country; many also were unable to find seating accommodation.

It would be certainly ungracious to close an account of the proceedings at this eventful clinic without giving words of praise to the very excellent and thorough arrangements thereof. Everything went off smoothly and without a hitch. This result was due to the staff of the clinic, who one and all, including the nurses, worked in loyal cooperation with Dr. Bainbridge. To Professor Jerome K. Lynch, Professor of Rectal Diseases at the Polyclinic, especial praise is due. He assisted Mr Patterson in his operation, and was one of the chief directing forces leading to the brilliant outcome of the clinic. Although it is somewhat of a digression, it may not be out of place to mention an excellent and humorous speech made by Professor Stewart. In referring to anoci-association he took the occasion to criticize in a good humored manner the rather extreme claims made for that method by Dr. Crile and his followers. The professor pointed out that anoci-association by surgeons had been practised almost for generations, and that although Dr. Crile deserved credit for laying stress on the importance of the principles of anoci association, yet it was absurd to overstate its importance or to herald it as something altogether new.

In the evening Sir Arbuthnot Lane and Mr Patterson were present as the guests of honor at a dinner given at the St. Regis Hotel by Dr. Bainbridge. The guests, who numbered more than one hundred, included distinguished surgeons from all parts of America. From a social point of view the gathering was a great success, but this was almost overshadowed from the standpoint of medical and scientific interest Sir Arbuthnot for an hour and a half described in detail the circumstances which had induced him to investigate the conditions giving rise to intestinal stasis and to initiate and work out operative methods best calculated to relieve and cure this condition and its deplorable sequelae. Probably Lane has never given a better account of the whole matter, and this alone made of the function outside of its social aspect a notable affair. Dr. Bainbridge exhibited himself in the light of a most excellent host, and every one present carried away the recollection of not only a very pleasant evening but were likewise given a truly intellectual treat Dr John A Wyeth made the opening after dinner speech, and compared Lane to Moses, in that he had led the surgical profession out of Egypt, through the desert and into the land of promise He also referred to Marion Sims, Reed, Gorgas, Ricketts, as being in the same class as Lane because they had blazed the trail, and thus had made the path easier for those who followed. He declared that such men as Lane did not belong to any particular country but to the world.

It was pleasing to note in the speech of Dr. Wyeth that complete absence of jealousy when referring to Lane and his work. His references were generous and whole hearted, and coming as they came from a great master of surgery, must have afforded Sir Arbuthnot Lane great gratification.

Mr. Patterson said that his chief claim to distinction was that he had introduced Lane to America, and that was a monument which should satisfy the aspirations of any man. He went on to say that after his first visit to America he had told his friends what he had witnessed and stated that in his opinion in surgical methods America was ten years ahead of England. Of course, such views were received with scepticism, but although London did not believe it, Lane said he had an open mind, in fact, was the only man who did not exhibit scepticism.

Augustus Thomas, who was the only layman with the exception of Mr. E. E. Wheeler present, made a speech which was both eloquent, witty and humorous and teemed with apt allusions and good stories. The veteran internist, Dr. William Hanna Thomson, in the course of his speech, paid the great compliment to the British Isles of possessing the medical schools, hospitals and teachers whence American physicians and surgeons had derived and still to a great extent derive a great part of their knowledge.

In introducing the guest of the evening, Dr. Bainbridge referred to Lane as a pioneer in several branches of surgery. Dr. Bainbridge also touched a personal note and said that he was not only indebted to Sir Arbuthnot Lane for the acquirement of surgical knowledge, but for kindnesses which he could never repay. Sir Arbuthnot Lane had from the first given him his friendship and welcomed him to his house, almost as a member of the family. Therefore, when he spoke or thought of Sir Arbuthnot Lane, his speech and feelings were unconsciously tinged with the personal element. Still Dr. Bainbridge felt that he could not let the occasion pass without giving expression to his sentiments.

Sir Arbuthnot, in commencing his speech, deplored his inability to express himself with eloquence and facility, and then proceeded forthwith to disprove his statement. For, although, neither in voice nor gesture is he an orator, he has a remarkably facile and smooth way of saying what he wants to say. He is seldom or never at loss for a word, and is especially ready at answering questions pertinent or impertinent. The truth doubtless is that he is so thoroughly master of his subject, perhaps almost obsessed by it, that he has all its details always at the end of his tongue. He paid Dr. Bainbridge the well deserved compliment of being an eager and zealous searcher for the truth, and said that in this respect he resembled the majority of American surgeons who did not begin to criticise matters concerning which they were ignorant or knew, but with an open mind investigated for themselves. Lane gave an account of the evolution of the human body under the stress of abnormal circumstances, and as an example gave the British coal heaver who, owing to his untoward conditions of life, develops in his structure certain definite changes. Lane delivered some hard hits at the physician in general, and made some shrewdly caustic remarks anent the conservatism and tradition bound tenets of the British medical profession.

He asserted that autointoxication leads to crime and that women being, by reason of their physical make up, more prone to this condition than men is more responsible for crime. The woman who is poisoned as the result of intestinal stasis is neurasthenic, morbid and miserable. She nags, and in the course of time so irritates her husband that he assaults her and sometimes even kills her.

The heckling which Sir Arbuthnot underwent at the conclusion of his speech greatly added to the interest and enjoyment of the evening. As said before, he is peculiarly apt at answering questions, and no one, even if the attempt was made, succeeded in taking a fall out of him.

Possibly the most pertinent questions asked were by Dr. Kennedy, who inquired what Lane's opinion was as to the influence of intestinal stasis upon the production and course of organic mental disorders, and especially of disseminated sclerosis. Of course, there is no doubt that many functional mental disorders are caused by autointoxication, brought about by constipation, and all are influenced by intestinal stasis, and it would seem reasonable to suppose that this condition might be an important factor in the production and might influence the course of organic mental diseases. The profession of to-day was dealing largely with ultimate results. The motto should rather be return to first causes, and underlying principles in justice to the patient. The proper comprehension of intestinal stasis means a revolution in medicine and surgery and an immeasurable benefit to the human race. Sir Arbuthnot said that he had no close or wide experience of this description of disease, but was of the opinion that intestinal stasis might bulk large in the direction referred to by Dr. Kennedy.

Among others who heckled Sir Arbuthnot Lane, and spoke, were Dr. Charles B. Wormelle, Boston; Dr. W. Rodman, Senior, Philadelphia; Drs. Cole, Jerome K. Lynch and Willy Meyer, of New York.

Dr Wormelle said that owing perhaps mainly to the fact that Sir Arbuthnot Lane had not visited and enlightened Boston, its surgeons were somewhat behind those of New York and Chicago. However, when the time came, as it surely would come, when the Atlantic steamers ran to Boston in place of New York, and when Boston had supplanted New York as the metropolis of America, then Sir Arbuthnot Lane might deem it worth while to go to Boston and instruct her surgeons concerning intestinal stasis and some other things. Dr. Draper Maury, who has been working with the Mayos in Rochester, Minn., and who has been performing a series of experiments on dogs, interrogated Sir Arbuthnot Lane as to the significance of certain of these experiments with respect to the human subject. Professor Lynch, who has also been performing experiments on dogs with the view to finding out more than is now known of their digestive powers, and especially with regard to the length of time that it takes food to pass through them, asked Sir Arbuthnot Lane questions as to his experience in this direction with human beings.

Dr. Williams, Surgeon, U. S. N., detailed his experiences with intestinal stasis in the navy. He said that he was interested in the matter by Dr Bainbridge and had found and treated eleven cases, and although in the circumstances he had not felt justified in radical operations, he was convinced of the validity of Lane's theories and methods of treatment

Dr. Willy Meyer, in eloquent terms, moved a vote of thanks to Sir Arbuthnot Lane

Dr. Stevens, who had been short circuited by Dr. Bainbridge a year ago, spoke on the great benefit he had received from treatment.

An account of the evening's proceedings would not be complete without making reference to the pictures illustrating different stages of intestinal stasis which were thrown on a screen. Some of these were made from the beautiful X ray work of that great X ray expert Dr. Jordan, of London, all the cases had been seen by Dr. Bainbridge in London, and the others were from illustrations drawn by Dr. Bainbridge's artist. Dr. Bainbridge, owing to the contention of many that the X ray pictures were often fallacious or misleading, procured an excellent artist, who knowing nothing of anatomy or surgery drew exactly what she saw. If, therefore, there was anything abnormal she drew it. At the same time, a stenographic report of the case was made. It would seem that this plan should remove any element of doubt.

The evening's enjoyment was greatly increased by a musical entertainment provided by Mr. H. Burleigh, the composer and singer of plantation songs and other melodies. Mr. Burleigh was assisted by Princess Red Feather, who gave some capital and artistic impersonations of Indian life, reciting also Indian songs. All who were present have reason to be grateful to Dr. Bainbridge for providing them with a feast of reason and a flow of soul with mental as well as social pabulum.

Dr. J. Douglas Malcolm, of the New York Skin and Cancer Hospital, was responsible for the arrangements, and to him, therefore, much of the success of the dinner and evening's entertainment is due.

Among those present were: Drs. J. W. Markoe, New York; William Mabon, New York; Thomas L. Stedman, New York; Mr. Augustus Thomas, New York; Drs. J. A. Babbitt, Philadelphia; J. Lotz, of Australia; P. L. Bronson, Philadelphia; J. L. Huppe, Wheeling, W. Va.; Walter Brickner, John A. Hartwell, New York; Graeme Hammond, New York; Osborne J. Harris, New York; L. Duncan Bulkley, New York; W. La Place, Philadelphia; Charles N. Dowd, Virgil P. Gibney, E. W. Lee, D. S. Southworth, C. G. Kerley, G. Reese Satterlee, A. W. Elting, R. H. Dawbarn, Reynold W. Wilcox, Max Einhorn.

MEDICAL FADS

Dr. W. T. Marrs, in a reminiscent article in *The Southern Clinic*, asks what has become of the medical fads of yester-year? The high colonic injection as a panacea for all ills; the hot water cure; the Fletcherizing of food; the Woodbridge treatment of typhoid fever; the ice pack in pneumonia, and so on. The writer states it would require several pages to enumerate all the medical and surgical ideas that have been put on a working basis for a little while, and then most of them have departed from the "earth earthy." The moral to be drawn from this is that common sense is, after all, the physician's most valuable asset. We must learn to glean the wheat from the chaff and utilize what is good. We should not be blind followers or hero worshippers. We must use our brains. All that is old is not effete and useless and wrong; all that is new is not always good. We should not be the first by whom the new is tried, and neither the first to cast the old aside.

THERAPEUTIC PROGRESS

Ulsanin.—Mandl, *Deutsche Medizinische Wochenschrift,* July 31, 1913, declares that the use of hydroiodoborate (ulsanin) shortens the time of healing in lupus and scrofulous granulating skin affections. The loss of tissue is less and scars not so apparent. It is an admirable remedy for disinfecting freshly infected wounds, in that nascent iodine and oxygen are given off without poisonous results. Its effects are rapid and thorough; after removal of necrosed tissue, the pus quickly diminishes. On account of the rapid and clean healing there is a great saving in dressings. Being non-poisonous it may be used for wounds of the scalp and abdomen.

Radium in Malignant Disease.—Robert Abbe, in the *Lancet,* August 23, 1913, draws conclusions from observation of 750 individual cases. Many forms of tumors which are not malignant respond to the use of radium in a most satisfactory and prompt manner. Epithelioma of the skin can be cured permanently with radium, and perhaps better than by any other known agent, and with the least scar. The worst types of cancer—of the breast or uterus in women, and of the stomach, esophagus, tongue, and rectum—usually show prompt and marked amelioration under large doses of radium, but ultimately the disease gains headway, and the temporary gains are lost. Giant cell bone sarcoma can be controlled promptly and certainly by radium. In no case of pure myeloid sarcoma has radium failed to cause retrogression and arrest of the condition. It may be concluded: 1. That there is an undoubted retrograde degeneration of malignant cells under the correct dose of the gamma rays from radium. 2. That the effective use of the drug lies in the application of a large enough amount to avoid the stimulant action of small doses at close range. 3. The alpha and short beta rays may be removed by filtration through lead. 4. Under such filtration a much longer time is required for the gamma rays to act than when the other rays are eliminated by what may be termed "distance filtration." In practice one and one half inches seems to exclude most of these, permitting free and instant play of the gamma rays without the delay of passage through lead. 5. Cross firing is necessary for the best results.

Radium in Treatment of Internal Diseases.—Kraus, *Deutsche Med. Wochenschrift,* October 9, 1913, reports results in forty one cases of gout, sciatica, neuralgia, angina pectoris, joint troubles, tabes, etc., in which radium exposures were given a thorough trial. Eighteen of the patients were essentially improved, thirteen improved, and only seven failed to show any influence for the better. The best results were obtained in the ten cases of sciatica; next to this in turn in subacute and chronic articular rheumatism, gout, intermittent claudication and some of the consequences of cerebral hemorrhage. The combination of radium and deep Roentgen ray exposures proved very effectual in some cases.

Serotherapy of Tetanus.—Weber, *Munchener Med. Wochenschrift,* October 9, 1913, relates two cases to show the importance of giving antitetanus serum as early as possible, and keeping it up until the spasms have become much mitigated. Children seem to bear a large total dosage without harm

The first patient was a boy of 13, and he recovered under fourteen injections of the antitetanus serum, a total of 1,400 serum units.

Potassio-Mercuric Iodid.—MacFarlan, in the *New York Medical Record,* September 13, 1913, recommends this agent as a most effective antiseptic for purrulent ophthalmia in 1 to 10,000 dilution; for ordinary antiseptic work, 1 to 2,000 can be used. He asserts it has a marked influence when used 1 to 2,000 in alcohol locally applied in diphtheria and scarlet fever in reducing infective inflammation. In erysipelas the local application will stop the mischief most rapidly.

Phosphorus in Epilepsy.—Leubuscher, in the *Deutsche Medizinische Wochenschrift,* March 13, 1913, asserts the belief that it is now established beyond question that autointoxication, originating in the intestines, is the main factor in bringing on epileptic seizures. After this factor has received due attention, he advocates giving phosphorus. He has been giving it since 1911, in 10,000 parts of oil. He details nine very severe cases of old epilepsy. The seizures were reduced by 30 or 40 per cent. in three cases, and by 65 per cent. in two. In three other cases improvement was less striking, while in one patient the seizures increased from about twelve to fourteen a month. The patients were between 17 and 30 years of age, and the epilepsy dated from childhood in most of them. The greatest relief was realized in the severer cases; in one the seizures were reduced in number from 119 to 70. The phosphorus was given for fifteen months in six cases.

General Anesthesia and the Liver.—Hildebrandt, in the *Münchener Med. Wochenschrift,* March 11, 1913, insists that the liver functioning should be tested in all cases before giving a general anesthetic, as a previously diseased liver will suffer more from toxic action of the anesthetic.

Magnesia Sulphate in Eclampsia.—Guggisberg, in the *Zentral blatt für Gynäkologie,* March 15, 1913, reports being disappointed with results in two cases of eclampsia in which he applied the intraspinal treatment of magnesium sulphate as advocated by Meltzer. When the action of the agent is restricted to the lower portion of the spinal cord, the therapeutic action is inadequate. When, however, the drug is sent to the upper part of the spinal cord by raising the lower part of the body, it effectually reduces the tendency to convulsions, but in such use the remedy ceases to be harmless, as disturbances in breathing may be anticipated.

Atophan.—Folin and Lyman, *Journal of Pharmacology and Experimental Therapeutics,* July, 1913, conclude that phenylquinoline carbonic acid, atophan, not only brings about an increased elimination of uric acid through the urine in gout, with diminution of uric acid in the blood, but seems to diminish the nonprotein nitrogen and urea whenever these are present in the blood in unusual amounts. Atophan acts on the kidneys; does not mobilize deposited urates.

Lipojodin.—Dutoit, *Zeitschrift für Augenheilkunde,* July, 1913, reports lipojodin a very valuable remedy in the treatment of optic neuritis of infections or toxic origin. The improvement of vision is usually rapid and constant, but it must be used for a long time. The same is true of diseases of the retina. It seems to be of especial value in senile degeneration of the macula. No unpleasant after effects have been noticed.

MISCELLANY

SKIM MILK AS AN ARTICLE OF DIET

A pound of lean beef contains about 0.18 pound of protein and has a fuel value of 870 calories. Two and a half quarts or 5 pounds of skim milk will furnish nearly the same amount of protein and have almost the same fuel value as the pound of lean beef. Two quarts of skim milk have a greater nutritive value than a quart of oysters, and the nutriment in the form of oysters will cost from 30 to 50 cents, while the two quarts of skim milk will cost from 4 to 6 cents, or on the farm from 2 to 4 cents. An oyster stew made of one part of oysters and two parts of skim milk will owe its nutriment more to the milk than to the oysters. A lunch or meal of bread and skim milk is very nutritious, as the following computation shows:

Food Material	Amount	Estimated Cost	Protein	Fuel Value
		Cents	Pound	Calories
Bread	10 oz.	3	0.06	755
Skim Milk	1 pt.	1	.03	170
Total	......	4	.09	925

The following lunch will serve for a comparison with the above:

Food Material	Estimated Amount	Protein	Fuel Value
	Ounces	Pound	Calories
Soup	8	0.01	75
Beef	2	.02	275
Potatoes	2	......	100
Turnips	1	......	15
Bread	4	.02	300
Butter	1/2	......	100
Coffee	......	......	......
Milk	1	......	20
Sugar	1/2	......	55
Total	Cost .20 to .50	.05	940

We believe that the cost of this meal would exceed 50 cents, especially in New York City.

These tables show that the lunch containing nine different foods and costing 20 to 50 cents does not contain a greater nutritive food value than the lunch of bread and milk, which under like conditions will never cost more than 10 cents.

The ingredient in our food which costs the most, which has the greatest physiological value, and which is most apt to be lacking in ordinary dietaries is protein. Skim milk has nearly all the protein of whole milk. By the removal of the fat in the cream it loses half of its fuel value, but practically none of the protein. What is left has all the value of the whole milk for building and repair of tissue, for the making of blood, muscle and bone, and half the value of the whole milk for supplying heat and muscular power. When these facts are fully understood, skim milk will doubtless be more generally utilized. The above is part of a very interesting paper on the choice of cow's milk by J. Allen Gilbert in the *Medical Record,* October 27, 1906.

Gilbert also declares that the milk of slow creaming, and slow churning, milk whose cream does not rise so quickly to the surface is more perfectly emulsified, has fewer and smaller fat globules, and is therefore easier of digestion and assimilation. This may account for the gastric and intestinal disturbance some experience in drinking whole milk, for it is a fact that diarrhea will follow in numerous cases where whole milk is freely used. In such cases it were wise to use skim milk or milk from which a considerable percentage of the fat has been removed. It does not follow that diluting whole milk or adding water will correct this tendency to diarrhea, for the fat would still be retained.

These are suggestions well worthy of the consideration of the physician when prescribing milk for the sick or invalid, as well as those in good health who use milk as an article of diet.

JUST SACK

The discovery of the "New World" by Christopher Columbus set all Europe by the ears, while "Frenchmen and Dutchmen and Spaniards and such men," as the old song goes, strove to be the first to profit by the riches of the new found continent.

Spain, of course, was the first claimant and benefited mostly from the treasure and commerce that came from the West; but while the galleons of Spain were busy across the Atlantic the hardy soldier-sailors of England's west country were harassing the south of Spain, and again and again did Sir Francis Drake and his fellow freebooters return from Cadiz and other Andalusian ports laden with the spoils of war. These spoils consisted mostly of the produce of Southern America which the Spanish conquerors had wrested from the natives.

These rough men of the sea were hard drinkers as well as hard fighters, and the holds of their vessels generally found room to stow a goodly quantity of the product of Spain's sunny vineyards—Malaga, Xeres, Malvoisie, Tent and the like. These wines were known to the British as sweet, heavy and luscious wines.

It was destined that Drake should change the taste of the English palate, for after one particularly happy foray he loaded down his ships with the natural product of the Xeres vineyards (the unsweetened qualities) and they were disposed of in London under the style of "Sherry Sec," Dry Sherry, which soon became known as "Sherry Sack," afterward as "Sack."

From then on, and for many years the wines of Xeres and Cadiz were known as "Sack."

"Sherry" is now the more common term, but "Sack" stands for what was and is—the best Spanish wines.

SUPERSTITIONS AND PREJUDICES WHICH HAMPER THE WORK OF THE SCHOOL INSPECTOR

Among the many difficulties encountered by the inspectors and nurses of the Health Department of New York City, when urging parents to have the various physical defects found in school children treated or corrected, the numerous traditions, prejudices and superstitions existing among the different elements which go to make up the population of our cosmopolitan city stand out prominently.

When the inspector or nurse suggests that an operation or other treatment be instituted some racial or religious prejudice or superstition will frequently be raised against such intervention. When glasses are suggested for defective vision they are often told that eyeglasses are a luxury, that they make the child look old, that they are worn for style, that the child will get used to them, that they will become a habit, that they will cause the eyes to grow weaker, or that they will interfere with the matrimonial chances of the daughter. When the parents are informed that the children do not hear well as a result, perhaps, of running ears, the inspector is informed that this discharge allows the poison to escape and thus purifies the blood, and the statement is frequently made that at home the child hears too much. Difficulty of breathing due to enlarged tonsils and adenoids results in the doctors and nurses being told by various elements of the population that God put the tonsils and adenoids there; that if the tonsils are removed, the throat will be too wide and air will rush into the lungs, subjecting the child to inflammation of the chest; that removal of the tonsils will interfere with the speech, the singing voice, and the procreative power, or that the children will become nervous and depressed, possibly with suicidal tendencies.

Voodooism is quite frequently met with amongst the negro population, and cases have been encountered where different colored yarns have been employed for the cure of contagious and other diseases of the skin and eyes.

A request that hair matted by dirt and lice be cut frequently brings the retort that to cut the hair will prevent the growth of the child and diminish its strength. A request to have the defects of teeth remedied meets with the statement that pulling teeth gives the children sore eyes; that it is bad luck for any poor child to have gold or silver in the mouth, or a mother will exhibit her toothless jaw and say, "I haven't any teeth and still I am alive." The "evil eye" is guarded against in some sections by the mother hastily licking the child's eyes and face, expectorating while she does so, or by sewing some salt in the child's shirt or by tying red ribbon around its wrist or neck. The weakness of the child's memory is frequently attributed to the fact that the child eats the ends of the bread loaves, while bed wetting is not uncommonly ascribed to the fact that the child always plays at the fire or with matches before he goes to bed.

Among some of the people wine, beer and coffee are considered as tonics and used to strengthen the child. Many mothers call their children to task for describing how a neighbor's child was operated upon, fearing that a similar operation will be performed upon their own.

COST OF SICK ALIENS

The Commissioners of Accounts, who have been investigating the public hospitals of New York City, in a recent report to the mayor, state that the city spends $70,000 a year for the hospital treatment of indigent aliens admitted to this country only because of lax methods of physical examinations at Ellis Island. It is recommended that this expense be shifted to the Federal Government. The report states that during the last three years 9,879 aliens were treated at Bellevue and allied hospitals free of charge, and that the average cost for each patient was $21.10, making a total of $208,466.90 expended for this purpose during those years.

BOOK REVIEWS

Dysenteries, Their Differentiation and Treatment. By LEONARD ROGERS, M.D., F.R.C.P., B.S., F.R.C.S., I.M.S., Physician to the Isolation Ward, Cholera and Dysentery, Medical College Hospital, and Professor of Pathology, Medical College, Calcutta. Oxford Medical Publication. Price $3.75. London: Henry Frowde, Oxford University Press. Hodder and Stoughton, 20 Warwick Square, London, E. C., 1913.

Much has been learned in recent years concerning tropical disease. In fact, more progress has been made in this direction than in any other branch of medicine. However, there is yet much to be learned in this field, and the medical profession of all civilized countries is engaged constantly in unselfish emulation, in trying to solve the problem of the origin, cause and treatment of the diseases of the tropics. From the fact that Great Britain has the largest field by far in this respect, it follows that her medical men are in the front rank as authorities on tropical maladies. Of these Dr. Rogers is one of the foremost and his investigations into the dysenteries have resulted in the dissemination of much knowledge regarding these diseases.

The book before us deals with the differentiation and treatment of the two great classes of amebic and bacillary dysentery and the whole matter is entered into and described fully. The feature of the work is the account of the author's discovery of the rapid specific action of hypodermic injections of the soluble salts of emetine in amebic dysentery, and this alone would be a sufficient *raison d'être* for the issue of the volume. Moreover, there are other numerous facts respecting the dysenteries which are of high value. Referring to chills, commonly looked on as predisposing or exciting causes of liver abscess in the tropics, the statement is made that this is a fallacy which must be carefully guarded against. In short, the work is a mine of valuable information on the subject dealt with and may be recommended as such to medical practitioners and students alike. The book is well printed and illustrated and written in excellent style.

Surgical Experiences in South Africa, 1899-1900. Being mainly a clinical study of the Nature and Effects of Injuries Produced by Bullets of small calibre. By GEORGE HENRY MAKINS, C.B., F.R.C.S., Senior Surgeon of St. Thomas's Hospital; Vice-President of the Royal College of Surgeons of England, etc. Second edition. Price $3.75. Oxford University Press, American Branch, 35 West 32d Street, New York. 1913.

This book contains a collection of articles, at first intended for publication in the British Medical, but revised and expanded by Mr. Makins, one of the foremost English surgeons, detailing his surgical experiences during a part of the South African War. The wounds caused by different kinds of bullets are described fully, in fact the various injuries incidental to war are discussed at length by a skillful and experienced surgeon. The chapter on injuries to the head and neck, including, of course, the brain, is of especial interest. The volume is a valuable contribution to the somewhat scanty literature dealing with the surgery of war in the English language, and while it should prove of great use to the army surgeon, at the same time, is a book which should be read by surgeons in civil life. It is well written, well published and bound, and its many excellent illustrations and diagrams are worthy of special notice.

The Principles and Practice of Medical Hydrology. Being the Science of Treatment by Waters and Baths. By R. FORTESCUE FOX, M.D. (Lond.), F.R. Met. Soc., Late Hyde Lecturer on Hydrology, Royal Society of Medicine. Price $2.00. London: University of London Press. Published for the University of London Press, Ltd., by Hodder and Stoughton and Henry Frowde, 1913.

In this work Dr. Fortescue Fox discusses and describes the various actions, both of waters and baths upon the body. Part I deals with the physiology of bathing, and in the chapter devoted to a consideration of the use of baths in health a warning is given against the excessive use of soap in the bath and especially of alkaline soap. This procedure removes too freely the natural fatty sebaceous matter from the surface of the body. The practice of the Romans of employing oil frictions after the bath is recommended, as it restores the natural protective lubricant covering of the skin. Part II discusses hydrotherapy, and due credit is here given to the valuable work of American writers, Baruch, Kellogg, Pratt, Hinsdale and others. Part III describes medicinal springs and baths, and Part IV gives the indications for hydrological treatment.

This volume, compiled and written by an acknowledged authority, should provide a useful *vade mecum* medical hydrology.

Pyorrhea Alveolaris. By FRIEDRICH HECKER, B.Sc., A.M., M.D., Member of the Academy of Science of St. Louis, Mo.; Consultant at Bell Memorial Hospital of the School of Medicine, University of Kansas, Consultant at St. Margaret's Hospital, Kansas City, Kansas. Illustrated. C. V. Mosby Company, St. Louis, 1913. Price $2.00.

Pyorrhea Alveolaris has developed within recent years to be a disease from which many pathological conditions may and do originate. Much study has been given the complaint, its constitutional and exciting possibilities for evil, until we are assured by authors that all specialties in medicine must be given careful study of and attention to its cure. In Chapter I of this work, under Varieties of Pyorrhea, we have enumerated the Diabetic, Interstitial Nephritic, Infection, Gastrointestinal, Presenile, Senile Varieties, besides those arising from Trauma, Chemical, Mecvhanical, Thermal and Bacteriological Irritants. We are told that the oculist, aurist, larygologist and the internist have frequent cause to attribute complaints in their specialty work to pyorrhea. For all of such we commend this work. It is full, well written and illustrated and illuminating.

Causes and Cures of Crime. By THOMAS SPEED MOSBY, Member of the American Bar; Former Pardon Attorney of the State of Missouri; Member American Institute of Criminal Law and Criminology; Author of Capital Punishment, etc., etc. Illustrated. C. V. Mosby Company, St. Louis, 1913. Price $2.00.

This is a valuable study on criminology which should be studied by all professions. It is divided into three parts: that of Etiology, Prophylaxis and Therapeutics. Our author takes the advanced position that crime is in most cases the outcome of a diseased mind. He advocates prison reforms, the use of hospitals rather than penitentiaries; the conservation of man instead of his degradation when crime is first committed. The work is illuminatingly illustrated, and altogether well gotten up.

The Human Body and Its Enemies. A Textbook of Physiology, Hygiene and Sanitation. By CARL HARTMAN, B.A., M.A., Instructor in Zoology, University of Texas, and LEWIS BRADLEY BIBB, B.A., M.D., Attending Physician, Austin Sanitarium, with two hundred and forty seven illustrations. World Book Company, Yonkers-on-Hudson, New York, 1913.

We have here an elementary work intended for the school boy or miss. There is much information, a good foundation for the study of right living. Each chapter concludes with a number of printed questions and a summary or Important Points which will serve admirably to impress the discussion upon their minds. It treats of anatomy, physiology, hygiene, and will be found a useful book for the purposes for which it is intended.

The Physician's Visiting List for 1914. Sixty third years of its Publication. P. Blakiston's Son & Company, 1012 Walnut Street, Philadelphia. Price $1.25.

As usual in former editions of this very popular list, it is admirably arranged, of convenient size, with numerous tables, list of incompatibles, metric system of weights and measures with their equivalents in apothecary's measure, physician's dose table, instructions for treating asphyxia and apnea, and comparison of thermometers, etc.